U. S. Nuclear Regulatory Commission
Site-Specific
Written Examination

Applicant Information	
Name:	Region: I
Date:	Facility/Unit: Indian Point Unit 3
License Level: SRO	Reactor Type: Westinghouse PWR
Start Time:	Finish Time:

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. The passing grade requires a final grade of at least 80.00 percent. Examination papers will be collected six hours after the examination starts.

Applicant Certification

All work done on this examination is my own. I have neither given nor received aid.

_____
Applicant's Signature

Results		
Examination Value	_____	Points
Applicant's Score	_____	Points
Applicant's Grade	_____	Percent

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator

1.	A	B	C	D	26.	A	B	C	D
2.	A	B	C	D	27.	A	B	C	D
3.	A	B	C	D	28.	A	B	C	D
4.	A	B	C	D	29.	A	B	C	D
5.	A	B	C	D	30.	A	B	C	D
6.	A	B	C	D	31.	A	B	C	D
7.	A	B	C	D	32.	A	B	C	D
8.	A	B	C	D	33.	A	B	C	D
9.	A	B	C	D	34.	A	B	C	D
10.	A	B	C	D	35.	A	B	C	D
11.	A	B	C	D	36.	A	B	C	D
12.	A	B	C	D	37.	A	B	C	D
13.	A	B	C	D	38.	A	B	C	D
14.	A	B	C	D	39.	A	B	C	D
15.	A	B	C	D	40.	A	B	C	D
16.	A	B	C	D	41.	A	B	C	D
17.	A	B	C	D	42.	A	B	C	D
18.	A	B	C	D	43.	A	B	C	D
19.	A	B	C	D	44.	A	B	C	D
20.	A	B	C	D	45.	A	B	C	D
21.	A	B	C	D	46.	A	B	C	D
22.	A	B	C	D	47.	A	B	C	D
23.	A	B	C	D	48.	A	B	C	D
24.	A	B	C	D	49.	A	B	C	D
25.	A	B	C	D	50.	A	B	C	D

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
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51.	A	B	C	D	76.	A	B	C	D
52.	A	B	C	D	77.	A	B	C	D
53.	A	B	C	D	78.	A	B	C	D
54.	A	B	C	D	79.	A	B	C	D
55.	A	B	C	D	80.	A	B	C	D
56.	A	B	C	D	81.	A	B	C	D
57.	A	B	C	D	82.	A	B	C	D
58.	A	B	C	D	83.	A	B	C	D
59.	A	B	C	D	84.	A	B	C	D
60.	A	B	C	D	85.	A	B	C	D
61.	A	B	C	D	86.	A	B	C	D
62.	A	B	C	D	87.	A	B	C	D
63.	A	B	C	D	88.	A	B	C	D
64.	A	B	C	D	89.	A	B	C	D
65.	A	B	C	D	90.	A	B	C	D
66.	A	B	C	D	91.	A	B	C	D
67.	A	B	C	D	92.	A	B	C	D
68.	A	B	C	D	93.	A	B	C	D
69.	A	B	C	D	94.	A	B	C	D
70.	A	B	C	D	95.	A	B	C	D
71.	A	B	C	D	96.	A	B	C	D
72.	A	B	C	D	97.	A	B	C	D
73.	A	B	C	D	98.	A	B	C	D
74.	A	B	C	D	99.	A	B	C	D
75.	A	B	C	D	100.	A	B	C	D

U.S.N.R.C. Site-Specific Written Examination
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Question 001

Given the following conditions:

- The plant is in Hot Standby.
- RCS temperature is 540°F.
- RCS cooldown is in progress.
- All RCPs are running

Which ONE (1) of the following describes the response of indicated RCS flow as the cooldown continues?

Indicated flow...

A. INCREASES as coolant density INCREASES

B. DECREASES as coolant density INCREASES

C. INCREASES as coolant density DECREASES

D. DECREASES as coolant density DECREASES

Question 002

The plant is operating at 100% power.

RCP Thermal Barrier Return Isolation valve AC-FCV-625 has inadvertently failed closed.

Which ONE (1) of the following describes the effect on RCP temperatures, if any, as a result of this failure?

A. All RCP bearing temperatures will remain the same.

B. #1 Seal Leakoff temperature will rise on all RCPs.

C. RCP Lower Bearing temperature will rise on all RCPs.

D. RCP Motor Bearing temperature will rise on all RCPs.

Question 003

Given the following conditions:

- An ATWS has occurred.
- The team is aligning CVCS for emergency boration.

If the Boric Acid Transfer Pumps tripped and could NOT be restarted, which ONE (1) of the following describes the Charging pump suction flowpath(s) that will remain available for boration in accordance with FR-S.1, Response to Nuclear Power Generation/ATWS?

A. LCV-112B, RWST to Charging Pump suction

B. LCV-112C, VCT Outlet to Charging Pump suction

C. MOV-333, Boric Acid to Charging Pump suction

D. The flow paths from both MOV-333 and LCV-112B

Question 004

Given the following conditions:

- A small break LOCA has occurred.
- The crew is performing the actions in ES-1.2, Post LOCA Cooldown And Depressurization.
- SI pumps have been stopped.
- Normal charging is aligned.
- The crew is depressurizing the RCS using normal spray.

Which ONE of the following describes the strategy for the continuing depressurization?

A. Maximize subcooling to ensure continued RCP operation.

B. Minimize subcooling to reduce RCS break flow.

C. Maximize subcooling to prevent a challenge to the Core Cooling CSF.

D. Minimize subcooling to ensure Pressurizer level remains above the lower limit to allow heater operation during the RCS cooldown.

Question 005

Which ONE (1) of the following describes the effect of an UNDERCOMPENSATED Intermediate Range channel following a reactor trip?

A. The channel will indicate LOW, prematurely energizing the Source Range

B. The channel will indicate LOW, and P-6 will not automatically energize the Source Range until the other Intermediate Range channel is below the required value

C. The channel will indicate HIGH, preventing P-6 from automatically energizing the Source Range

D. The channel will indicate HIGH, but the Source Range will be energized from the other Intermediate Range channel

Question 006

Which ONE (1) of the following describes the **MINIMUM** Core Exit Thermocouple (CET) input to determine that a RED Path exists on the Core Cooling Critical Safety Function Status Tree?

A. The single highest CET indicates greater than 1200°F

B. The five highest CETs all indicate greater than 1200°F

C. The highest CET in each core quadrant indicates 1200°F

D. The average of the five highest CETs calculated value is greater than 1200°F

Question 007

Given the following conditions:

- The plant is operating at 100% power.
- 31, 32, 33, and 35 FCUs are in service to provide Containment Cooling.
- All Emergency Safeguards Features equipment is operable

Subsequently, reactor trip and Loss of Off-Site power occur. All equipment functions as designed.

Which ONE (1) of the following describes the resulting Containment Cooling lineup?

A. FCUs must be started manually. Cooling water flow is maintained by TCV-1103.

B. Only 31, 32, 33, and 35 FCUs will be in service. Cooling water flow is raised by providing a Service Water flow path parallel to TCV-1103.

C. All FCUs will be in service. Cooling water flow is maintained by TCV-1103.

D. FCUs must be started manually. Cooling water flow is raised by providing a Service Water flow path parallel to TCV-1103.

Question 008

Given the following conditions:

- The plant was operating at 100% power when a Station Blackout coincident with a Safety Injection occurred.
- The Diesel Generators have energized the 480 VAC busses.
- MCCs and lighting busses have **NOT** been reset.

Which ONE (1) of the following identifies the Feedwater System Valve position?

A.
- Main FW Reg. Valves CLOSED
- FW Reg. Bypass Valves CLOSED
- Main Feedwater header isolation valves OPEN
- Feed Pump Discharge Valves CLOSED

B.
- Main FW Reg. Valves CLOSED
- FW Reg. Bypass Valves CLOSED
- Main Feedwater header isolation valves CLOSED
- Feed Pump Discharge Valves CLOSED

C.
- Main FW Reg. Valves OPEN
- FW Reg. Bypass Valves CLOSED
- Main Feedwater header isolation valves OPEN
- Feed Pump Discharge Valves CLOSED

D.
- Main FW Reg. Valves CLOSED
- FW Reg. bypass Valves CLOSED
- Main Feedwater header isolation valves OPEN
- Feed Pump Discharge Valves OPEN

Question 009

Given the following conditions:

- The plant is at 10% power.
- A power increase is in progress.

Which ONE (1) of the following describes the method used to transfer feedwater control to the Main Feedwater Regulating valves in accordance with SOP-FW-1, Main Feedwater System?

A. Manually crack open the Main Feedwater Regulating valve (MFRV). When an increase in feedwater flow is observed, simultaneously close the associated Feedwater Regulating Bypass valve while opening the MFRV. Place the MFRV in AUTO when the Bypass is closed and SG level is stable.

B. Place the MFRV in AUTO. Reduce SG level slightly by closing the MFRV Bypass Valve, and observe the MFRV automatically restores SG level to the setpoint. Continue the process until the MFRV Bypass valve is closed.

C. Manually crack open the MFRV. Ensure SG level is maintained on program by the automatic closure of the MFRV Bypass valve. When the MFRV Bypass valve is closed and SG level is stable at the setpoint, place the MFRV in AUTO

D. Place the MFRV in AUTO. Raise controller output until SG level begins to rise. Manually throttle the MFRV Bypass valve closed, ensuring the MFRV automatically returns SG level to the setpoint.

Question 010

Given the following conditions:

- Reactor trip from 100% power
- All systems function as designed
- 480 Bus 6A is de-energized due to a fault.

Assuming no action taken by the team, which ONE (1) of the following describes the Steam Generators that have AFW flow?

A. All four SGs

B. 31 and 32 SGs

C. 33 and 34 SGs

D. None of the SGs are currently supplied with AFW

Question 011

The In-Service Large Gas Decay Tank has a Hydrogen concentration of 4.8%.

Per TRM 3.7.D, Explosive Gas Monitoring System, which ONE of the following is the highest Oxygen concentration allowed to prevent a flammable mixture in the Waste Gas System?

A. 2%.

B. 3%.

C. 4%.

D. 5%.

Question 012

Which ONE (1) of the following occurs when R-1, Control Room Area Radiation monitor, reaches an alarm condition?

A. The control room ventilation shifts to 100% Incident mode.

B. The control room A/C secures and the ventilation is automatically shut down.

C. Dampers 'A' and 'B' realign, Damper 'C' is throttled, and One Booster Fan Inlet Damper opens.

D. Dampers 'A' and 'B' realign, Damper 'C' opens fully, and Two Booster Fan Inlet Dampers open.

Question 013

Given the following:

- 480V Bus 5A is deenergized due to a fault.
- All other equipment is in the normal configuration when the reactor automatically trips on low Pressurizer pressure.
- Safety Injection has actuated.

Which ONE (1) of the following describes the status of Safety Injection System?

A. Two SI Pumps running and injecting to four RCS cold legs.

B. Two SI Pumps running and injecting to two RCS cold legs.

C. Three SI Pumps running and injecting to four RCS cold legs.

D. Three SI Pumps running and injecting to two RCS cold legs.

Question 014

Given the following conditions:

- The plant is at 93% power after a short transient.
- All control systems are operating in their normal alignments
- Pressurizer PORVs indicate closed
- Pressurizer Spray valves indicate partial open
- Modulating Heaters are energized at minimum output
- One set of backup heaters is on in manual
- All other Backup Heaters are off with control switches in AUTO

Based on the conditions presented, which ONE (1) of the following is the current value of Pressurizer pressure?

A. 2180 psig

B. 2210 psig

C. 2250 psig

D. 2310 psig

Question 015

480 volt bus 6A is de-energized.

Which ONE (1) of the following describes the combination of pressurizer heaters that are still available for pressurizer pressure control?

A. Two groups of Backup heaters

B. Three groups of Backup heaters

C. One group of Backup heaters and Modulating heaters

D. Two groups of Backup heaters and Modulating heaters

Question 016

Which ONE (1) of the following reactor trips is designed to protect the core from a departure from nucleate boiling (DNB) condition?

A. Power Range High Flux (high setpoint)

B. Overtemperature-Delta Temperature

C. Overpower-Delta Temperature

D. Pressurizer High Level

Question 017

Given the following conditions:

- The plant is operating at 88% power.
- Rod Control is in MANUAL
- Control Bank D rods are at 200 steps
- All Tavg channels are approximately 4.5°F higher than Tref

Which ONE (1) of the following describes the resulting rod control operation if the Rod Control System Mode Selector Switch is placed in AUTO prior to matching Tave and Tref?

A. Step in at 32 SPM

B. Step out at 32 SPM

C. Step in at 56 SPM

D. Step out at 56 SPM

Question 018

Given the following conditions:

- A LBLOCA has occurred.
- Containment pressure is 33 psig and slowly rising.
- 31 Containment Spay pump is running.
- 32 Containment Spray Pump is tripped and cannot be started.

Which ONE (1) of the following is the **MINIMUM** number of Containment Fan Cooler Units (CFCUs) required to maintain containment pressure less than design?

A. 1

B. 2

C. 3

D. 4

Question 019

Given the following conditions:

- The plant is operating at 100% power.
- Spent Fuel Pit High Temp annunciator is in alarm. Temperature is approximately 135°F
- Spent Fuel Pit Low Level annunciator is in alarm. Level is approximately 93', 1".
- Investigation reveals 31 SFP Cooling pump has tripped and will not restart
- 32 SFP Cooling pump is tagged out of service
- FSB ventilation is in service
- The Backup Spent Fuel Cooling System CANNOT be placed in service.

Which ONE (1) of the following describes additional actions taken to maintain SFP cooling in accordance with ONOP-SFP-1, Loss of Spent Pool Pit Cooling?

A. Initiate makeup as necessary using the PWST to account for evaporation IAW SOP-SFP-1.

B. Initiate Bleed and Feed cooling of the SFP using the Primary Water Storage Tank.

C. Install a temporary connection to the City Water System to make up to the Spent Fuel Pit.

D. Increase Component Cooling water flow to the SFP heat exchanger and initiate recirculation of the SFP using the SFP Purification loop.

Question 020

Given the following conditions:

- The plant is at 100% power
- All control systems are in their automatic alignments
- The selected 33 SG Steam Flow input fails low
- 33 SG level indicates 26% and trending down
- 31,32,34 SG levels indicate 48% and stable

Which ONE (1) of the following actions is required next in accordance with ONOP-RPC-1?

A. Place 33 SG feedwater regulating valve in manual and restore level to the normal band

B. Select the alternate steam flow channel and ensure 33 SG level is restored in automatic

C. Trip the reactor and enter E-0, Reactor Trip or Safety Injection

D. Restore program DP by raising MBFP speed in manual to match actual steam flow and feed flow

Question 021

Given the following conditions:

- Reactor power is 11%, with a plant startup in progress
- Steam dumps are modulated open in Pressure Control mode
- Tave – 551 degrees F
- RCS press – 2235 psig
- Main Steam Header pressure transmitter PT404 fails at its current pressure value.

Which ONE (1) of the following is the steam dump response as startup continues?

A. Steam dumps modulate based on the Tref/Tave error signal generated as power rises

B. Steam dumps remain open until the Steam Dump Mode Selector Switch is placed in Temperature Control Mode.

C. Steam dumps will modulate closed as power is increased, and will only reopen when the Steam Dump Mode Selector Switch is placed in Temperature Control Mode

D. Steam dumps modulate further open based on the steam pressure input as power is increased, and close when Tave decreases to less than the Low Tave setpoint

Question 022

Given the following:

- The unit is at 100% power.
- All major controls are in AUTO.
- Tave has slowly INCREASED 0.2°F in the last 5 minutes.
- Main Generator output has DECREASED 10 MWe.

Which ONE (1) of the following describes the cause of the above indications?

A. SG Safety Valve leakage.

B. Condenser Air Ejector malfunction.

C. Inadvertent RCS dilution.

D. Inadvertent Control Rod insertion.

Question 023

Battery Charger #35 is being used in place of Battery Charger #31.

Which ONE (1) of the following power supplies will be connected to Battery Charger #35 to maintain operability and Train separation for the #31 Battery and DC Bus?

A. MCC 36A.

B. MCC 36C.

C. MCC 36D.

D. MCC 36E.

Question 024

Given the following conditions:

- 31 Emergency Diesel Generator (EDG) is shutdown
- DC control power is unavailable to the 31 EDG

Which ONE (1) of the following describes how the loss of DC control power would affect the EDG operation?

A. The EDG cannot be started by automatic signals or from the local control panel.

B. The EDG would start in response to an automatic signal or from the local control panel.

C. The EDG can only be started manually at the local control panel.

D. The EDG can only be started manually from the Central Control Room or at the local control panel.

Question 025

Given the following conditions:

- The Plant is operating at 100% power.
- 31 EDG is started for surveillance testing.

Which ONE (1) of the following describes how a reverse power condition is prevented when closing the EDG output breaker?

A. Ensure synchroscope is rotating slowly in the 'FAST' (clockwise) direction prior to closing the breaker.

B. Ensure running and incoming currents are matched prior to closing the output breaker.

C. Ensure running and incoming voltages are matched prior to closing the output breaker.

D. Ensure running and incoming frequencies are matched prior to closing the output breaker.

Question 026

Given the following conditions:

- The plant is operating at 81% power.
- A bus fault causes a trip and lockout of the normal feeder to 480 volt bus 3A.
- The cause of the fault has not been determined.

Which ONE (1) of the following describes the effect on Instrument Bus 34?

A. Energized from inverter 34 by DC bus 34, which is energized by Battery Charger 34.

B. Energized from inverter 34 by DC bus 34, which is energized by battery 34.

C. Energized from the alternate AC power supply from MCC 36C.

D. De-energized until manually transferred to the alternate AC power supply from MCC 36B.

Question 027

Given the following conditions:

- A manual reactor trip was initiated during a transient
- Reactor trip did NOT occur
- The team is entering FR-S.1, Response to Nuclear Power Generation/ATWS

Which ONE (1) of the following actions, **if required**, MUST be performed from memory? (Immediate Action)

A. Manually close MSIVs

B. Manually start AFW pumps

C. Open CH-MOV-333, Emergency Boration Valve

D. Start both Boric Acid Transfer pumps in high speed

Question 028

Station Air system pressure decreases and stabilizes at 85 psig.

Which ONE (1) of the following describes the effect on Instrument Air and Station Air systems if the Instrument Air System pressure decreased to 88 psig?

A. Instrument Air pressure will stabilize at 88 psig and Station Air pressure will increase to 88 psig

B. Station Air pressure will remain at 85 psig and Instrument Air pressure will remain at 88 psig when PCV-1142 opens at 90 psig Instrument Air pressure

C. Instrument Air pressure will decrease to 85 psig and Station Air pressure will remain at 85 psig when PCV-1142 opens at 90 psig Instrument Air pressure

D. Station Air pressure will remain at 85 psig and Instrument Air pressure will remain at 88 psig when PCV-1142 opens at 90 psig Station Air pressure

Question 029

Which ONE (1) of the following describes the Fire Protection provided for the Turbine Generator housing and bearings?

A. Dry Pipe sprinkler and Foam

B. Wet Pipe sprinkler and Foam

C. Dry Pipe sprinkler and Carbon Dioxide

D. Wet Pipe sprinkler and Carbon Dioxide

Question 030

The plant is being cooled down to cold shutdown. The following conditions exist:

- RHR has been placed in service.
- RCS TAVG is 220 °F.
- RCS pressure increases rapidly to 600 psig.
- A Pressurizer PORV opens.
- RCS pressure stabilizes at 580 psig.
- NO other actuations have occurred.

Which ONE (1) of the following actions is required in accordance with ONOP-RHR-1?

A. Open AC-MOV-730 and 731 to ensure adequate suction head for the RHR pumps.

B. Open AC-MOV-730 and 731 to ensure an adequate cold over pressurization relief path.

C. Close AC-MOV-730 and 731 to prevent over pressurization of the RHR system.

D. Close AC-MOV-730 and 731 to minimize RCS leakage pathways.

Question 031

Given the following conditions:

- A Large Break LOCA has occurred.
- Both Hydrogen Recombiners are in service.

If one of the operating Recombiners trips, which ONE (1) of the following describes the effect on the removal of Hydrogen from Containment?

A. Hydrogen concentration will remain below 4% with only one Recombiner in operation.

B. Hydrogen concentration will rise above 4% but remain below 13% with only one Recombiner in operation.

C. Hydrogen concentration will remain below 4% only if the Containment Purge System is placed in service in addition to the Recombiner.

D. Hydrogen concentration will remain below 4% only if Containment Spray is placed in service in addition to the Recombiner.

Question 032

Which ONE (1) of the following correctly describes the operation of Containment Iodine Fan Filter Units?

A. May be started manually only. Operated only under non-accident conditions.

B. May be started manually only. Operated under accident and non-accident conditions.

C. May be started manually or automatically. Operated under non-accident conditions only.

D. May be started manually or automatically. Operated under accident and non-accident conditions.

Question 033

Given the following conditions:

- The plant is in Hot Standby
- Plant startup is in progress
- Steam dumps are modulating as required per procedure
- RCS temperature indicates 547°F

Which ONE (1) of the following actions will INCREASE steam flow through the Main Condenser steam dumps?

A. Withdraw Shutdown Bank "A" rods

B. Raise the steam dump pressure setpoint

C. Lower the steam dump pressure setpoint

D. Place steam dump control in "Temperature Control" mode

Question 034

Given the following conditions:

- A reactor trip and safety injection has occurred.
- Transition was made to E-1, Loss of Reactor or Secondary Coolant.
- In accordance with RO-1, you are required to direct the Nuclear NPO to restart #31 PAB exhaust fan.

Which of the statements below correctly identifies the actions required to start this fan?

A. Transfer to the alternate power supply (MCC-312) for #31 PAB exhaust fan and start the fan.

B. Transfer the Fan Selector Switch to the Exhaust Fan #31 - Containment Building Purge Fan position and start the 31 PAB exhaust fan.

C. Ensure the Fan Selector Switch is selected to the Exhaust Fan #31 - PAB Supply fan position and start the fan

D. Remove the thermal overloads for PAB Supply fan and close the breaker then start #31 PAB Exhaust Fan.

Question 035

Which ONE (1) of the following sets of tags can be hung simultaneously on the same component, in accordance with AP-10.1, Protective Tagging?

A. A Danger and a Caution tag

B. Two (2) Test and Maintenance tags

C. A Danger tag and a Test and Maintenance tag

D. A Caution tag and a Test and Maintenance tag, only if each holder signs onto both tagouts.

Question 036

Given the following conditions:

- The Control Rod Full Out position is 230 steps.
- The Bank Overlap Unit is set for normal operation.

During rod withdrawal, when Control Bank "B" reaches full out position, what will be the position of Control Bank "C"?

A. 000 steps

B. 104 steps

C. 126 steps

D. 230 steps

Question 037

The following plant conditions exist during a mid-cycle reactor start-up:

- The MSIVs are closed
- The reactor is critical below the Point of Adding Heat (POAH)
- Tavg is at the normal No-Load value.
- RCS Boron is 850 PPM.
- Bank D at 180 steps.
- The RO withdraws control rods 12 steps.
- Startup rate is 0.3 DPM.

Without further action, which ONE (1) of the following describes the plant response to the rod withdrawal?

When the Point of Adding Heat is reached,

A. T_{avg}, power level, pressurizer pressure and level will all increase until the reactor trips at 10% power.

B. T_{avg}, power level, pressurizer pressure and level will increase until the condenser steam dumps open to stabilize power at a higher level.

C. T_{avg}, power level, pressurizer pressure and level will increase until the atmospheric steam dumps open to stabilize power at a higher level.

D. T_{avg} will increase which will add negative reactivity causing power to decrease, which will drive the reactor sub-critical unless rods are withdrawn further.

Question 038

Given the following conditions:

- The plant is in Mode 5.
- Preparations are underway for a Containment Purge.
- Purge Supply and Exhaust isolation valves are open
- The selected fans control switch is placed in CLOSE

Which ONE (1) of the following describes the events that would automatically terminate or discontinue the purge?

A. If smoke is detected, the operating fans trip, and the Containment Purge isolation valves must be manually closed.

B. If selected fans do not start within 60 seconds, the isolation valves will close.

C. If WCCPPS pressure is not released within 190 seconds, the fans will not start.

D. If the Fire Detection System Fan Interlock Bypass switch is in BYPASS, the fans will not start.

Question 039

How are EOP substeps designated if they must be performed in the order in which they are listed?

A. Substeps are designated by bullets

B. The entire step is surrounded by a solid line

C. The major step is designated with an asterisk

D. Substeps are designated by alpha-numeric characters

Question 040

Which of the following is the LOWEST emergency classification at which the Emergency Operations Facility (EOF) MUST be activated?

A. Unusual Event

B. Alert

C. Site Area Emergency

D. General Emergency

Question 041

Given the following conditions:

- A rapid load reduction from 100% to 70% power was performed.
- Control Bank D rods were inserted to 180 steps.
- One Control Bank D rod did not move and is currently at 214 steps.

Which ONE (1) of the following describes a concern associated with the rod misalignment?

A. Xenon buildup in the area of the stuck rod may immediately affect core power distribution

B. Xenon burnout in the area of the stuck rod may immediately affect core power distribution

C. Xenon buildup in the area of the inserted rods may affect core power distribution if left uncorrected

D. Xenon burnout in the area of the inserted rods may affect core power distribution if left uncorrected

Question 042

The team is preparing to cool down the plant to Cold Shutdown in accordance with ES-0.2, Natural Circulation Cooldown.

What is the maximum allowed cooldown rate and why is this limit imposed?

A. Less than 50°F per hour to prevent exceeding Tech Spec cooldown limits

B. Less than 50°F per hour to minimize the probability of creating a void in the reactor vessel

C. Less than 25°F per hour to prevent exceeding Tech Spec cooldown limits

D. Less than 25°F per hour to minimize the probability of creating a void in the reactor vessel

Question 043

Given the following conditions:

- An ATWS has occurred.
- The team is performing actions of FR-S.1, Response to Nuclear Power Generation/ATWS.
- The team has initiated Emergency Boration.
- All equipment has operated as designed.
- SI is NOT actuated.
- RCS pressure is 2210 psig and Trending DOWN.
- Tavg is 567°F and Trending DOWN.

Which ONE (1) of the following describes plant response to initiation of the boration?

A. Boric Acid Tank level will be dropping at a rate approximately equal to Charging flow.

B. Volume Control Tank level will be dropping at a rate approximately equal to Charging flow.

C. Refueling Water Storage Tank level will be dropping at a rate approximately equal to Charging flow.

D. Pressurizer level will be rising at a rate approximately equal to Charging flow.

Question 044

Given the following conditions:

- The plant is in Mode 5
- RCS temperature is 190°F
- A loss of Off-site power occurs.
- EDGs do NOT load onto the 480 volt busses
- Power is restored to the 480 volt busses from off-site
- When restoring CCW, the pump control switch is placed in STOP/OFF prior to starting the pump.

Which ONE (1) of the following describes the reason for placing the pump control switch in STOP/OFF?

A. It resets the pump 86 lockout relay

B. It charges the breaker closing spring

C. It resets the common annunciator

D. It bypasses the Low Pressure Start signal for 60 seconds

Question 045

Given the following conditions:

- The plant is at 100% power.
- All control systems are in their normal automatic alignments.
- Pressurizer pressure channel PT-455 indicates 2275 psig and slowly rising.
- All other narrow range pressurizer pressure indications are 2220 psig and slowly dropping

Which ONE (1) of the following actions is required next in accordance with ONOP-RPC-1?

A. Place the pressurizer pressure controller in manual and control RCS pressure.

B. Place the affected PORV control switch in 'close'.

C. Reset and reenergize pressurizer heaters.

D. Trip the reactor, enter E-0, Reactor Trip or Safety Injection.

Question 046

Which ONE (1) of the following sets of conditions will result in the MOST SEVERE reactivity excursion during a Main Steam Line Break?

A. 10% power, RCS Boron = 200 ppm

B. 10% power, RCS Boron = 1200 ppm

C. 100% power, RCS Boron = 200 ppm

D. 100% power, RCS Boron = 1200 ppm

Question 047

During the performance of ECA-2.1, Uncontrolled Depressurization of All Steam Generators, the following plant condition exists:

- Cooldown rate of the RCS is greater than 100°F/hour

How is the team directed to control feedwater flow?

A. Feedwater flow is terminated to all but a single intact S/G, which is fed at 100 gpm

B. Feedwater flow is maintained at least 365 gpm total until any SG narrow range is >9%

C. Feedwater flow is maximized to any one S/G until narrow range level in any SG is >9%

D. Feedwater flow is reduced to 100 gpm to each S/G with narrow range level less than 9%

Question 048

Given the following conditions:

- The Unit is operating at 100% power with all systems in automatic alignments.
- The crew is referring to the ARPs due to a condenser vacuum alarm.

Assuming no action has been taken by the crew, which ONE of the following describes the response of the rod control system to this event?

Control rods will automatically...

A. insert due to the rise in condenser backpressure causing a rise in Tavg – Tref deviation.

B. insert due to the drop in condenser backpressure causing a rise in Tavg – Tref deviation.

C. withdraw due to the rise in condenser backpressure causing a drop in Tavg – Tref deviation.

D. withdraw due to the drop in condenser backpressure causing a drop in Tavg – Tref deviation.

Question 049

Given the following plant conditions:

- Reactor Trip and Turbine Trip has occurred from 100% power
- Loss of all AC power has occurred
- Each Steam Generator Atmospheric Dump Valve controller's output is 100% demand
- Steam Driven Auxiliary Feedwater Pump is supplying feedwater to all four Steam Generators
- Indicated Steam Flow is 0 pounds mass per hour from all S/Gs approximately 30 minutes after the trip

Which ONE (1) of the following statements explains the steam flow indication?

A. Main Steam Isolation Valves closed on an automatic isolation signal.

B. Main Steam Isolation Valves closed on loss of AC power.

C. Steam Generator Atmospheric Dump Valves closed on loss of Instrument Air.

D. Steam Generator Atmospheric Dump Valves closed on loss of AC power.

Question 050

Given the following conditions:

- The plant is at 80% power.
- A loss of Instrument Bus 31 has occurred.

Which ONE (1) of the following statements describes why the HI-HI Containment Pressure relays are blocked when performing the appropriate attachment in accordance with ONOP-EL-3?

A. Blocks inadvertent actuation of Containment Spray in the case of a redundant channel failure

B. Provides a channel trip of Containment Spray to change the coincidence to 1 out of 3 for Spray actuation

C. Makes up part of the coincidence circuitry for Spray initiation, since Containment Spray relays are energized to actuate

D. Blocks the actuation signal from the channel supplied from the de-energized instrument bus from causing an inadvertent Phase B containment isolation signal

Question 051

Given the following conditions:

- A plant cooldown is in progress.
- RHR is NOT yet in service.
- COMPONENT COOLING SURGE TANK #31 LEVEL annunciator (Panel SGF) alarms.
- Local investigation reveals no obvious cause for the problem. The level in both surge tanks is slowly decreasing.

Based on this information/indication, which ONE (1) of the following is the cause of the problem?

A. A leak exists in a RCP thermal barrier heat exchanger.

B. A tube leak exists in #31 CCW heat exchanger.

C. A tube leak exists in non-regenerative heat exchanger.

D. An excessive primary plant cooldown rate exists.

Question 052

The plant has been operating at steady state conditions at 100% power for the past 30 days.

Number 1 seal return flow has dropped rapidly from 3.0 GPM to O.9 GPM, and the "Reactor Coolant Pump Standpipe High Level" alarm has annunciated for RCP 31.

Which ONE (1) of the following describes the reason for these indications?

A. RCP Seal No. 1 Failure

B. RCP Seal No. 2 Failure

C. RCP Seal No. 3 Failure

D. Loss of Seal Injection flow

Question 053

Given the following conditions:

- A small break LOCA has occurred.
- Due to a CSF Red Path, the team entered FR-C.1, Response to Inadequate Core Cooling, and restored Safety Injection flow
- The team is currently performing the actions in E-1, Loss Of Reactor Or Secondary Coolant
- Core exit thermocouples indicate approximately 520°F.
- RCS pressure indicates approximately 800 psig.

Which ONE (1) of the following describes the status of the Reactor Coolant System throughout this event?

A. Saturated upon entry to FR-C.1; Saturated at the present time

B. Saturated upon entry to FR-C.1; Subcooled at the present time

C. Superheated upon entry to FR-C.1; Superheated at the present time

D. Superheated upon entry to FR-C.1; Saturated at the present time

Question 054

Following a LOCA with subsequent ECCS failures, the crew is performing the actions in FR-C.2, Response To Degraded Core Cooling.

- RCS pressure is rising.
- Pressurizer Pressure High annunciator on Panel SAF is Lit
- Core Cooling has NOT been restored

Which ONE (1) of the following describes the required operation of the Pressurizer PORVs in this event?

A. Leave closed and isolated until required to establish a vent path prior to RCP restart.

B. Verify they operate automatically or operate manually for RCS overpressure control if necessary.

C. Leave closed and isolated to prevent further loss of RCS inventory.

D. Open to depressurize the RCS to facilitate SI accumulator injection

Question 055

What is the primary purpose of depressurizing the steam generators in response to a degraded core-cooling situation?

A. To collapse the steam voids and enhance reflux cooling in the RCS

B. To increase the primary to secondary thermal driving head for natural circulation

C. Clear the loop seal and vent steam to provide maximum cooling from the RHR pumps

D. The cooldown and depressurization of the RCS will facilitate core recovery via the SI accumulators

Question 056

Given the following conditions:

- A rapid load reduction from 100% power to 65% power was performed approximately 3 hours ago.
- R-63A and R-63B, RCS Gross Failed Fuel monitors, are in alarm.
- R-4, Charging Pump Room Area Radiation Monitor, is in alarm.
- Chemistry confirms RCS activity exceeds Technical Specification limits.

The CRS directs a plant shutdown be performed.

Which ONE (1) of the following actions is designed to limit the release of radioactivity in the event of a subsequent SGTR?

A. MSIVs are closed.

B. All SG Atmospheric Dump valve setpoints are raised.

C. RCS is cooled down below 500°F.

D. Maximum Condensate Polishers are placed in service.

Question 057

Given the following conditions:

- The plant is at 100% power.
- All control systems are operating in their normal alignments
- Tavg and Tref are matched and stable
- Control Bank D begins stepping out at a rate of 8 steps per minute.
- The CRS directs entry to ONOP-RC-2, Rod Control System Malfunction

Which ONE (1) of the following conditions will require initiation of a manual reactor trip in accordance with ONOP-RC-2?

A. Rod motion continues beyond actuation of the OT Delta T rod stop

B. Any control rod drop during the rod motion

C. Rod motion continues with the bank selector switch in MANUAL or BANK SELECT

D. Rod motion continues beyond actuation of any Power Range High Flux Rod Stop

Question 058

Given the following conditions:

- The plant is at 100% power.
- All control systems are in their automatic alignments
- The following annunciator is received on Panel SBF
  - Rod Control Non-Urgent Failure

- Investigation determines that a failure of a redundant power supply in Power Cabinet 2AC is the cause of the alarm.
- Rod Control is placed in Manual per the ARP

If the other redundant power supply to Power Cabinet 2AC were to fail, which ONE (1) of the following conditions would result?

A. Rods controlled by Power Cabinet 2AC would drop

B. All rod motion by rods controlled by Power Cabinet 2AC would be frozen

C. The Bank Overlap Unit would reset to zero

D. One reactor trip breaker would lose control power and the reactor would trip

Question 059

Given the following conditions:

- Pressurizer pressure is 985 psig
- Pressurizer Relief Tank pressure is 5 psig
- PRT temperature is 90°F
- The reactor is shut down

If a pressurizer safety valve begins to leak, which ONE (1) of the following is the temperature seen downstream of the leaking valve?

A. 230°

B. 300°

C. 340°

D. 550°

Question 060

Given the following conditions:

- Reactor trip and safety injection have occurred.
- RCS pressure is 450 psig and stable
- Containment pressure is 0.7 psig and rising

If the break is at the SI Cold Leg discharge line connection to loop 31, which ONE (1) of the following describes the SI flow indication in the CCR?

A. SI flow indication is approximately equal in all 4 loops. RHR flow is zero in all 4 loops.

B. SI flow and RHR flow to loop 31 is off-scale high. SI flow to loops 32, 33, 34 is reduced. RHR flow to loops 32, 33, 34 is zero.

C. SI flow is zero to loop 31. SI flow to loops 32, 33, 34 is elevated. RHR flow is zero to all 4 loops.

D. SI flow to loop 31 is off-scale high. SI flow to loops 32, 33, 34 is reduced. RHR flow to all loops is zero.

Question 061

Given the following conditions:

- The reactor has tripped. Safety Injection and Containment Spray have actuated.
- The team is performing the actions of E-1, Loss of Reactor or Secondary Coolant
- RCS pressure is 20 psig.
- RHR flow is 3000 gpm.
- Containment Sump level is rising rapidly.
- SG pressures are approximately 680 psig and stable.
- A Red Path exists on the Integrity Status Tree
- The CRS directs transition to FR-P.1, Response to Imminent Pressurized Thermal Shock
- The procedure immediately sends the team back to E-1

Based on the above plant conditions which ONE (1) of the following states the reason for the procedure transition from FR-P.1 back to E-1?

A. The RCS cooldown and pressure reduction performed in FR-P.1 are not required during a Large Break LOCA.

B. A Small Break LOCA has priority over Pressurized Thermal Shock concerns.

C. Faulted SG isolation must occur prior to transition to a Functional Recovery Procedure.

D. Since Safety Injection cannot be terminated, FR-P.1 provides an immediate transition back to E-1.

Question 062

Procedure ES-0.0, "REDIAGNOSIS" is implemented...

A. at the discretion of the CRS anytime during the performance of the Emergency Operating Procedures.

B. when directed to do so according to criteria listed on the foldout page of the current procedure in effect.

C. only after transition out of E-0 has occurred when Safety Injection has been actuated.

D. at the discretion of the CRS, but only after completion of a Functional Restoration Procedure.

Question 063

Assuming no operator actions are taken, which ONE of the following describes the plant conditions following VCT level channel LT-112 failure HIGH?

A. Increasing VCT level and letdown diverted to the HUT.

B. Decreasing VCT level and loss of NPSH to the charging pumps.

C. Increasing VCT level and continuous makeup from the blender to the VCT.

D. Decreasing VCT level and auto swapover of the charging pump suction to the RWST.

Question 064

Given the following conditions:

- RHR is in service at Reduced Inventory conditions.

Which ONE (1) of the following indications are used to determine if cavitation is occurring?

A. RHR flow and pump amps increasing as RCS inventory is raised.

B. RHR flow and pump discharge pressure oscillations.

C. RHR pump discharge pressure and RVLIS Full Range level oscillations.

D. RHR flow high coincident with RVLIS Full Range level low.

Question 065

Given the following conditions:

- RCS pressure is 1000 psig and trending down.
- Safety Injection has actuated.
- 31 SG NR level is 5% and trending down, pressure is 500 psig and trending down slowly.
- 32 SG NR level is 7% and trending down, pressure is 480 psig and trending down slowly.
- 33 SG NR level is 3% and trending down, pressure is 490 psig and trending down slowly.
- 34 SG NR level is 3% and trending down, pressure is 500 psig and trending down slowly.
- Total AFW flow is 180 GPM
- Containment pressure is 4 psig and rising.
- The team is preparing to transition from E-0, Reactor Trip or Safety Injection.

Which ONE (1) of the following procedures will be entered under these conditions?

A. E-2, Faulted Steam Generator Isolation.

B. FR-H.1 Response to Loss of Secondary Heat Sink.

C. FR-H.5, Response to Steam Generator Low Level.

D. ECA-1.2, Uncontrolled Depressurization of All Steam Generators.

Question 066

Given the following conditions:

- The plant is at 100% power.
- A Loss of Instrument Air pressure has occurred
- The CRS has directed entry to ONOP-IA-1, Loss of Instrument Air

Which ONE (1) of the following plant conditions will require a reactor trip in accordance with ONOP-IA-1?

A. Instrument Air pressure cannot be maintained above 60 psig

B. Essential Service Water header pressure indicates less than 60 psig

C. Loss of 31, 32, and 33 Instrument Air Compressors

D. Loss of Charging Pump Speed Control

Question 067

Given the following conditions:

- The plant is in Mode 3.
- 31 and 33 Auxiliary Boiler Feed Pumps (ABFPs) are in service feeding all 4 SGs.
- 125 VDC control power to the 33 ABFP is lost.

Which ONE (1) of the following describes the effect on the operation of 33 ABFP?

A. Breaker indication in CCR is lost
CCR breaker control is lost
Pump will trip

B. Breaker indication is available
CCR breaker control is lost
Pump will trip

C. Breaker indication in CCR is lost
CCR breaker control is lost
Pump remains running

D. Breaker indication in CCR is available
CCR breaker control is lost
Pump will remain running

Question 068

Which of the Area Radiation Monitors (ARMs) has an automatic action (other than an alarm) when the alarm setpoint is reached?

A. R-2 Vapor Containment ARM

B. R-5 Fuel Storage Building ARM

C. R-7 Incore Instrumentation Room ARM

D. R-4 Charging Room ARM

Question 069

Given the following conditions:

- A Steam Generator Tube Rupture has occurred.
- The team is performing actions contained in E-3, Steam Generator Tube Rupture.

Which ONE (1) of the following describes the reason for reducing RCS pressure to match ruptured SG pressure in E-3?

A. To eliminate concern for SG overfill and damage to secondary side steam piping.

B. To restore RCS inventory and reduce break flow prior to stopping ECCS pumps.

C. To minimize the probability of a Pressurized Thermal Shock event when RCS cooldown is commenced.

D. To ensure there will be no release of radioactivity through the SG Atmospheric Dump valves for the duration of the SGTR.

Question 070

Given the following conditions:

- The plant is at 100% power. All control systems are in automatic.
- Steady state conditions exist.
- The controlling pressurizer level channel, LT-460, slowly fails high.

Without operator action, which ONE (1) of the following describes the response of charging and letdown?

A. Charging flow will decrease due to the level channel failure, and the letdown isolation valve, LCV-460, will close.

B. Charging flow will decrease due to the level channel failure, and the letdown isolation valve, LCV-459, will close.

C. Charging flow will increase due to the level channel failure, and the letdown isolation valve, LCV-460, will close.

D. Charging flow will increase due to the level channel failure, and the letdown isolation valve, LCV-459, will close.

Question 071

Given the following conditions:

- The plant was at 100% power, BOL
- A loss of off-site power has occurred
- Subsequently, a loss of CCW required a reactor trip and a trip of all RCPs

Which ONE (1) of the following describes the response of the reactor core ΔT from the time the RCPs are tripped until one hour later in the event?

Core ΔT...

A. Rises as natural circulation is being established, then remains constant as heat removal is established with the atmospheric steam dumps

B. Rises as natural circulation is being established, then lowers as decay heat load diminishes and heat removal is controlled by the atmospheric steam dumps

C. Lowers as natural circulation is being established, then remains constant as heat removal is established with the atmospheric steam dumps

D. Lowers as natural circulation is being established, the rises as decay heat load diminishes and heat removal is controlled by the atmospheric steam dumps

Question 072

Which ONE (1) of the following describes the design basis of the AFW system?

With the Condensate Storage Tank (CST) at the minimum level required by Technical Specifications,

A. Any one AFW pump can remove decay heat for 24 hours in Hot Standby following a loss of off-site power

B. Any two AFW pumps can remove decay heat for 24 hours in Hot Standby following a loss of all AC power

C. Any one AFW pump can remove decay heat for 72 hours in Hot Standby following a loss of off-site power

D. Any two AFW pumps can remove decay heat for 72 hours in Hot Standby following a loss of all AC power

Question 073

The Unit is at 91% power.

Control Bank "D" Group 1 indicates the following:

- Group step counter position is 180 steps.
- DRPI indicates the following:
  - Control Rod F02 at 178 steps
  - Control Rod B10 at 191 steps
  - Control Rod K14 at 166 steps
  - Control Rod P06 at 164 steps

Which ONE (1) of the following describes the action(s) required by Technical Specifications and ONOP-RC-1, Dropped or Misaligned Rod?

A. Immediately trip the reactor and emergency borate the RCS.

B. Reduce thermal power to less than 80% within 1 hour and restore both control rods to within alignment within 2 hours, or borate to Hot Standby conditions within the following 6 hours.

C. Restore control rods to within alignment in 2 hours or be in Hot Standby within the following 6 hours.

D. Verify Shutdown Margin within 1 hour and be in Hot Standby within 6 hours

Question 074

Given the following conditions:

- The plant is at 100% power.
- All control systems are in their normal automatic alignments
- 33 Condensate pump trips and cannot be restarted

Which ONE (1) of the following actions is required?

A. Enter ONOP-FW-1, Loss of Feedwater, and place MBFP speed control in manual. Reduce speed until suction pressure is stable above 350 psig

B. Enter ONOP-FW-1 and initiate a manual turbine runback and reactor power reduction to maintain MBFP suction pressure above 350 psig

C. Enter E-0, Reactor Trip or Safety Injection, and transition to ES-0.1, Reactor Trip Response, to establish AFW flow

D. Enter E-0, Reactor Trip or Safety Injection, and transition to FR-H.1, Loss of Secondary Heat Sink, to establish AFW flow

Question 075

Given the following conditions:

- The plant is operating at 100% power with all systems in normal alignments.
- A liquid release of 31 Monitor Tank is in progress.
- The following annunciators are received in the Control Room:
  - CHANNEL FAILURE
  - R-18 LIQ. EFF.
- R-18, Liquid Waste Effluent monitor is alarming.
- The discharge remains in progress.

Which ONE (1) of the following describes effect on the plant and the actions required?

A. The radiation monitor has failed. Request that HP recheck calculations and provide recommendations on action to be taken.

B. The radiation monitor has failed. The release may continue provided 2 independent samples are taken and the activity is verified to be below ODCM limits.

C. The discharge should have automatically stopped. Stop the discharge, direct Chemistry to sample the test tank and refer to the ODCM for further actions.

D. The discharge should have automatically stopped. Stop the discharge, direct Chemistry to sample the test tank and declare an ALERT based on unauthorized radwaste discharge exceeding 10CFR100 limits.

Question 076

Reactor/Turbine power is 42%. A Reactor trip occurs due to I&C Testing.

After the trip, you observe the following parameter values:

- REACTOR POWER is 5%
- FEEDWATER FLOW on SG 33 and 34 are 25%
- FEEDWATER FLOW on SG 31 and 32 are 15%

Select the answer that describes how the AMSAC system will respond to these indications.

A. AMSAC WILL NOT actuate because PT-412A & PT-412B will indicate turbine load less than 40% following the turbine trip

B. AMSAC WILL actuate after the functional timer times out and will start the ABFPs

C. AMSAC WILL NOT actuate because the feedwater LOW flow transmitters setpoint/logic is not satisfied

D. AMSAC WILL NOT actuate because C-20 timer will actuate bypassing AMSAC before the actuation timer is completed

Question 77

Given the following conditions:

- The plant is operating at 100% power.
- All 3 EDGs are declared INOPERABLE due to a common mode failure.
- While verifying breaker alignments, the determination is made that 1 off-site power source is also inoperable

Which ONE (1) of the following actions are required in accordance with Technical Specifications?

A. Immediately enter TS 3.0.3 and make preparations for a plant shutdown.

B. Immediately verify availability of the remaining Off-Site Power source. Restore at least 1 EDG within 6 hours or enter TS 3.0.3.

C. Immediately verify availability of the remaining Off-Site Power source. Restore at least 1 EDG to OPERABLE status within 24 hours or enter TS 3.0.3.

D. Return at least 1 EDG to OPERABLE status within 24 hours or enter TS 3.0.3 and make preparations for a plant shutdown.

Question 078

Given the following conditions:

- The plant is operating at 100% power
- Both Component Cooling Water Surge Tank levels are lowering.
- Makeup water is initiated and the Component Cooling Water headers are split.
- Level in 31 Component Cooling Water Surge Tank continues to decrease while level in 32 Component Cooling Water Surge Tank stabilizes.

Which ONE (1) of the following actions is required if 31 CCW Surge Tank continues to drop?

A. Reduce loads on 32 CCW header in preparation for cross-tie of CCW.

B. Trip the CCW pump on 31 header. If CCW flow can not be restored to 31 CCW header within 2 minutes, then trip the reactor, trip all four RCPs and establish city water cooling to the charging pumps.

C. Trip the CCW pump on 31 header. If spent fuel pit temperatures begin to rise, then place the SFP backup cooling in service. Shut down the plant in accordance with Technical Specifications.

D. Reduce loads on 31 header. Isolate charging and letdown and reduce charging pump speed to minimum. Shut down the plant in accordance with Technical Specifications.

Question 079

Given the following conditions:

- A loss of Instrument Air has occurred.
- The CRS has directed a reactor trip in accordance with the requirements of ONOP-IA-1, Loss of Instrument Air
- Prior to initiating the reactor trip, the RO informs the CRS that some actions of ONOP-IA-1 may help stabilize the plant.

Which ONE (1) of the following describes the allowable usage of ONOP-IA-1 while responding to this event?

A. Remain in ONOP-IA-1 until all actions are completed. If plant cannot be stabilized, trip the reactor and enter E-0, Reactor Trip or Safety Injection.

B. Trip the reactor, enter E-0. When immediate actions are complete, parallel use of ONOP-IA-1 is allowed.

C. Trip the reactor, enter E-0. Discontinue use of ONOP-IA-1 until transition to Plant Operating Procedures has been made.

D. Trip the reactor, enter E-0. Discontinue use of ONOP-IA-1 until transition to any recovery procedure. Parallel use is only allowed when E-0 is complete.

Question 080

Given the following conditions:

- The plant is at 100% power
- A failure of PORV 455C actuation circuitry requires declaring the valve inoperable.
- The valve cannot be cycled

Which ONE (1) of the following describes the Technical Specification action required?

Within ONE hour...

A. Remove power from PORV 455

B. Verify operability of PORV 456

C. Verify operability of PORV 455C block valve

D. Close PORV 455C block valve and remove its power

Question 081

Given the following conditions:

- The plant was operating at 100% power when a reactor trip occurred on low pressurizer pressure.
- A Steam Generator Tube Rupture was diagnosed, and E-3, Steam Generator Tube Rupture was entered.
- E-3, Step No. 31, "Minimize RCS-To-Secondary Leakage" is being performed (attached).

Given the following control room indications:

- SG 33 Blowdown Sample indicates high radiation.
- SG 33 NR level is 32% and dropping.
- Feed flow has been isolated to SG 33.
- SG 31, 32, and 34 levels are slowly lowering.
- PRZR level is 63% and rising.

Which one of the following describes the appropriate operator action?

A. Depressurize RCS.

B. Lower Charging flow.

C. Turn on PRZR heaters.

D. Depressurize RCS and lower Charging flow.

Question 082

According to AP-3, IP3 Procedure Preparation, Review, and Approval, an advanced TPC is for:

A. Intent changes to be incorporated as a subsequent procedure revision

B. Substantive non-intent changes to be incorporated at the next procedure revision

C. Non-intent changes to correct spelling or punctuation, to be incorporated in the next procedure revision

D. Non-intent change to address temporary conditions in the current procedure that will NOT be incorporated in the next procedure revision

Question 083

Given the following conditions:

- The plant is in Mode 5.
- Hydrostatic testing is in progress.
- RCS pressure is inadvertently raised to 2750 psig.

Which ONE (1) of the following states the MAXIMUM amount of time allowed to restore RCS pressure to within the applicable safety limit?

A. 5 minutes

B. 15 minutes

C. 30 minutes

D. 60 minutes

Question 084

A reactor startup is being performed 20 hours after a trip from 100% power.

- Estimated Critical Rod Position is Control Bank D at 100 steps
- Criticality is predicted in approximately 5 hours

If the startup was to proceed one hour LATER than scheduled, what is the effect on the 1/M plot data taken during the startup?

The 1/M plot will...

A. ACCURATELY predict criticality at a LOWER rod height

B. ACCURATELY predict criticality at a HIGHER rod height

C. INACCURATELY predict criticality in a CONSERVATIVE direction

D. INACCURATELY predict criticality in a NON-CONSERVATIVE direction

Question 085

The following conditions exist for a job performed on a system:

- The general area radiation levels are 10 mrem/hr
- The hot spot in the room is a pipe elbow that has radiation levels of 100 mrem/hr
- The job will be performed near the hot spot area

Assuming transit time is the same for each case and all shielding placement is done at 100 mrem/hr, which ONE (1) of the following results in the LEAST amount of personnel exposure?

A. Two Radiation Control personnel hang and remove 1 tenth thickness of lead shielding on the hot spot in 1.5 hours on the job. The job is performed after the lead shielding is in place by using 2 operators for 3 hours each.

B. The job is performed by 3 operators for 1 hour each on the job at the hot spot and a fourth operator reading instructions in the general area room for 1 hour.

C. The job is performed by 2 operators for 2 hours each on the job at the hot spot and a third operator reading instructions in the general room area for 2 hours

D. The job is performed by 2 operators for 3 hours each on the job at the hot spot

Question 086

Given the following conditions:

- You are required to make an entry to a Locked High Radiation Area.
- Your year-to-date exposure is 1.6 Rem Total Effective Dose Equivalent (TEDE).
- The job is planned to take 20 minutes to complete with 5 minutes transit time each way.
- Transit path radiation levels are 400 mr/hr.
- Work area radiation levels are 1200 mr/hr.

Which one of the following conditions describes your eligibility to perform this task?

A. You may perform this task provided you are signed onto a High Radiation Area RWP.

B. Special approval is required for this task because you will exceed the site TEDE limit.

C. You may only perform this task if you meet the requirements for a Planned Special Exposure (PSE).

D. You cannot perform the task because your current year to date exposure is already within 80% of the site administrative TEDE limit.

Question 087

The following alarms have just actuated:

- PROCESS MONITOR HIGH RAD
- COMPONENT COOLING SURGE TANK LEVEL
- THERMAL BARRIER CCW HEADER LOW FLOW

What ONE (1) of the following procedures will be used to respond to this event?

A. ONOP-RCS-5, Reactor Coolant Pump Malfunction

B. ONOP-RM-1, Failure of Radiation Monitor

C. ONOP-CC-1, Loss of Component Cooling

D. ONOP-CC-2, Leakage into the Component Cooling System

Question 088

Given the following conditions:

- The team has entered ONOP-RW-1, Service Water Malfunction, due to low Service Water pressure in the essential header.
- Backup Service Water pump 37 has been started to restore pressure.
- While looking for the problem, the Essential Service Water header pressure slowly continues to decrease.

Which ONE (1) of the following actions will be taken next?

A. Trip the reactor and enter E-0, Reactor Trip or Safety Injection.

B. Start 38 Service Water pump using ONOP-RW-1, Service Water Malfunctions.

C. Start 39 Service Water pump using ONOP-RW-1, Service Water Malfunctions.

D. Commence a unit shutdown using ONOP-TG-3, Rapid Shutdown.

Question 089

Given the following conditions:

- Reactor has tripped and SI is initiated.
- Due to some ECCS problems, core cooling is diminished.
- The crew is performing the actions of E-1, Loss of Reactor Coolant.
- RCS pressure is 1400 psig and stable.
- PZR level is off-scale low.
- All SG NR levels are between 15-20%.
- 31, 32, 33 SG pressures are approximately 1020 psig and stable.
- 34 SG pressure is 1140 psig and slowly rising.

Which ONE (1) of the following describes the appropriate action?

FR-H.2, Response to Steam Generator Overpressure,....

A. MUST be entered and performed until 34 SG pressure is returned to within limits or until a higher priority condition develops.

B. MAY be entered at CRS discretion. If entered, it MUST be performed to completion.

C. MUST be entered and performed to completion unless a higher priority condition exists.

D. MAY be entered or exited at CRS discretion.

Question 090

Given the following conditions:

- A reactor trip has occurred due to a loss of off-site power.
- RCPs are tripped.
- The team is performing actions of ES-0.2, Natural Circulation Cooldown.
- RVLIS is NOT available.
- The team has commenced RCS depressurization to 1890 psig.
    - RCS pressure is 2080 psig and Trending DOWN.
    - RCS Tavg is 548°F and STABLE.
    - PRESSURIZER LOW LEVEL, on panel SAF, has alarmed.
    - Pressurizer Level is 5% and Trending DOWN.

Which ONE (1) of the following actions will be required?

A. Continue depressurization to 1890 psig and block SI.

B. Initiate Safety Injection and go to E-0, Reactor Trip or Safety Injection.

C. Stop the cooldown, Block SI, and initiate depressurization to 1890 psig.

D. Stop the depressurization and go to ES-0.4, Natural Circulation with Steam Void in Vessel, without RVLIS.

Question 091

Following a load rejection from 100% to 60% power, the crew is attempting to stabilize the plant.

- The RO reports that a 'Pressurizer Pressure High' first out annunciator on Panel FDF.
- Indications exist that the Pressurizer PORVs have opened
- Pressurizer pressure spiked to approximately 2370 psig and is now dropping rapidly
- The reactor and turbine remain on-line

Which ONE (1) of the following actions is required next?

A. Stabilize the plant at 60% power. Initiate boration for AFD control.

B. Trip the reactor, enter E-0, Reactor Trip or Safety Injection

C. Trip the reactor, enter FR-S.1, Response to Nuclear Power Generation/ATWS

D. Verify the PORVs have closed. Close the PORV block valves. Monitor RCS pressure for Reactor Trip and Safety Injection initiation setpoints

Question 092

Given the following conditions:

- A LOCA has occurred.
- The team is performing actions contained in E-1, Loss of Reactor or Secondary Coolant.
- The following conditions currently exist:
    - All SI equipment is operating as required.
    - RCS pressure is 80 psig.
    - The STA informs you of the following CSF Orange conditions:
        - Integrity
        - Containment

Which ONE (1) of the following describes the correct response to these indications?

A. Enter FR-P.1, Response to Imminent Pressurizer Thermal Shock Condition. Take action to stop RCS cooldown and reduce RCS pressure. When directed, enter FR-Z.1, Response to High Containment Pressure.

B. Enter FR-P.1, Response to Imminent Pressurizer Thermal Shock Condition. Ensure RHR flow is consistent with RCS pressure. Transition to FR-Z.1, Response to High Containment Pressure.

C. Enter FR-Z.1, Response to High Containment Pressure. When action is complete, transition to FR-P.1, Response to Imminent Pressurizer Thermal Shock Condition. Take action to stop RCS cooldown and reduce RCS pressure, then return to E-1.

D. Enter FR-Z.1, Response to High Containment Pressure. When action is complete, transition to FR-P.1, Response to Imminent Pressurizer Thermal Shock Condition. Ensure RHR flow is consistent with RCS pressure, then return to E-1.

Question 093

You are preparing a Liquid Waste Release Permit in accordance with SOP-WDS-14, Liquid Waste Releases.

R-18, liquid effluent process monitor, fails its source check.

Which of the following describes the actions necessary to authorize the release?

A. Chemistry must be requested to draw two samples, approximately 15 minutes apart. The release calculations must be independently verified prior to approval of the permit.

B. Chemistry must be requested to draw two samples. The time to release the tank and the volume released must be independently verified before the permit can be approved.

C. Perform a source check on R-18 channel 2. If the source check is satisfactory, the permit may be approved.

D. The permit may not be approved until R-18 is restored to operable status. Volume of liquid to be released must be recirculated a minimum of 2 hours and all calculations performed prior to release.

Question 094

Given the following conditions:

- The plant is operating at 100% power.
- Work performed on SI-AOV-1813 requires a Post Maintenance Retest.
- SI-878A, 31 Spray Pump Discharge Test Isolation, must be opened for the retest. It is a locked closed, non-automatic containment isolation valve

Which ONE (1) of the following is required to open SI-878A to perform the retest?

A. CRS or SM approval only, since the valve is part of a line open to containment during normal operations

B. An approved Temporary Change is required for the off-normal valve position.

C. A Dedicated Operator must be stationed at the valve to close it in the event of an emergency

D. It must be inside of a tagged boundary to be opened above Mode 5.

Question 095

Given the following conditions:

- The plant is in Mode 6
- Refueling is in progress
- The Refueling SRO reports damage to an irradiated fuel assembly on the Refueling Crane mast

Which ONE (1) of the following is required to be performed immediately in accordance with ONOP-RP-1?

A. Evacuate Containment.

B. Start the Iodine Filter Fans and initiate containment isolation.

C. Initiate CVCS Letdown Purification IAW ONOP-CVCS-2.

D. Lower the fuel assembly to the bottom of the Refueling Cavity floor.

Question 096

Given the following:

- A small break LOCA has occurred. The team is in ES-1.2, Post LOCA Cooldown And Depressurization.
- RCS subcooling is adequate. The team has determined that one SI pump can be stopped.

Which ONE (1) of the following explains what will happen to the value of subcooling when the selected SI pump is stopped?

A. Lowers because break flow remains constant while ECCS flow is reduced. RCS temperature rises and stabilizes at a higher value.

B. Lowers as RCS pressure lowers in response to reduced ECCS flow. Stabilizes at a lower value when break flow equals ECCS flow.

C. Remains the same. Flow from the running SI pump rises, reaching a balance with break flow.

D. Remains the same. RCS temperature rises in response to the reduced ECCS flow, but RCS pressure also rises.

Question 097

Given the following conditions:

- Plant startup is in progress.
- Reactor Power is 6%
- The team is responding to a failure of Intermediate Range Channel N-35
- As Channel N-35 is being taken out of service, channel N-36 fails off-scale low

Which ONE (1) of the following actions, if any, is required by Technical Specifications?

A. Intermediate Range NIs are NOT required. Power ascension may continue.

B. Maintain reactor power between the P-6 and P-10 setpoints until at least 1 Intermediate Range channel is declared operable.

C. Immediately suspend all positive reactivity additions and reduce power to below the P-6 setpoint within 2 hours.

D. Immediately reduce power to below the P-6 setpoint and be in Mode 3 with reactor trip breakers open within 4 hours

Question 098

Given the following conditions:

- A plant startup is in progress.
- The latest RCS leak rate data indicates the following:
  - 0.98 UNIDENTIFIED leakage to Containment atmosphere
  - 2.4 gpm total Pressure Isolation Valve leakage. The maximum leakage from one valve is 0.39 gpm.
  - 31 SG - 0.091 gpm
  - 32 SG - 0.098 gpm
  - 33 SG - 0.118 gpm
  - 34 SG - 0.338 gpm

Using the attached Technical Specification reference, which ONE of the following leakage limits, if any, is being exceeded?

A. Unidentified

B. Primary-to-Secondary

C. Pressure Isolation Valve

D. All leakage is less than Technical Specification limits

Question 099

Given the following conditions:

- A LOCA has occurred.
- While performing E-1, Loss of Reactor Coolant, all SI Recirculation pumps and RHR pumps are UNAVAILABLE.
- The crew enters ECA-1.1, Loss of Emergency Coolant Recirculation.
- A cooldown has been initiated as directed in ECA-1.1.

Based on current plant conditions, which ONE (1) of the following conditions requires transition from ECA-1.1?

A. An ORANGE condition on the Core Cooling CSF Status Tree.

B. RWST level DECREASES to less than 1.5 feet.

C. RVLIS Full Range reads greater than 61%.

D. RCPs have been started and CET's are lowering.

Question 100

Given the following conditions:

- Plant is refueling
- Transfer Tube gate valve is open
- An irradiated assembly is in the RCC change fixture

The following occurs:

- Reactor Pit sump pump indicates ON
- High Level Reactor Pit alarm annunciates
- Containment and Recirculation sump levels are rising slowly
- R-2 and R-7 are in alarm and indications are rising

Which ONE (1) of the following actions is required in accordance with ONOP-RP-3?

Place the irradiated fuel assembly...

A. in the upender and lower to the horizontal position

B. directly west of the RCCA change fixture and unlatch the fuel from the crane

C. in any accessible spent fuel pit location

D. in any accessible area of the Refueling Cavity floor.

U. S. Nuclear Regulatory Commission
Site-Specific
Written Examination

Applicant Information	
Name:	Region: I
Date:	Facility/Unit: Indian Point Unit 3
License Level: RO	Reactor Type: Westinghouse PWR
Start Time:	Finish Time:

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. The passing grade requires a final grade of at least 80.00 percent. Examination papers will be collected six hours after the examination starts.

Applicant Certification

All work done on this examination is my own. I have neither given nor received aid.

_____
Applicant's Signature

Results

Examination Value	_____	Points
Applicant's Score	_____	Points
Applicant's Grade	_____	Percent

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Reactor Operator

1.	A	B	C	D	26.	A	B	C	D
2.	A	B	C	D	27.	A	B	C	D
3.	A	B	C	D	28.	A	B	C	D
4.	A	B	C	D	29.	A	B	C	D
5.	A	B	C	D	30.	A	B	C	D
6.	A	B	C	D	31.	A	B	C	D
7.	A	B	C	D	32.	A	B	C	D
8.	A	B	C	D	33.	A	B	C	D
9.	A	B	C	D	34.	A	B	C	D
10.	A	B	C	D	35.	A	B	C	D
11.	A	B	C	D	36.	A	B	C	D
12.	A	B	C	D	37.	A	B	C	D
13.	A	B	C	D	38.	A	B	C	D
14.	A	B	C	D	39.	A	B	C	D
15.	A	B	C	D	40.	A	B	C	D
16.	A	B	C	D	41.	A	B	C	D
17.	A	B	C	D	42.	A	B	C	D
18.	A	B	C	D	43.	A	B	C	D
19.	A	B	C	D	44.	A	B	C	D
20.	A	B	C	D	45.	A	B	C	D
21.	A	B	C	D	46.	A	B	C	D
22.	A	B	C	D	47.	A	B	C	D
23.	A	B	C	D	48.	A	B	C	D
24.	A	B	C	D	49.	A	B	C	D
25.	A	B	C	D	50.	A	B	C	D

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Reactor Operator

51.	A	B	C	D	76.	A	B	C	D
52.	A	B	C	D	77.	A	B	C	D
53.	A	B	C	D	78.	A	B	C	D
54.	A	B	C	D	79.	A	B	C	D
55.	A	B	C	D	80.	A	B	C	D
56.	A	B	C	D	81.	A	B	C	D
57.	A	B	C	D	82.	A	B	C	D
58.	A	B	C	D	83.	A	B	C	D
59.	A	B	C	D	84.	A	B	C	D
60.	A	B	C	D	85.	A	B	C	D
61.	A	B	C	D	86.	A	B	C	D
62.	A	B	C	D	87.	A	B	C	D
63.	A	B	C	D	88.	A	B	C	D
64.	A	B	C	D	89.	A	B	C	D
65.	A	B	C	D	90.	A	B	C	D
66.	A	B	C	D	91.	A	B	C	D
67.	A	B	C	D	92.	A	B	C	D
68.	A	B	C	D	93.	A	B	C	D
69.	A	B	C	D	94.	A	B	C	D
70.	A	B	C	D	95.	A	B	C	D
71.	A	B	C	D	96.	A	B	C	D
72.	A	B	C	D	97.	A	B	C	D
73.	A	B	C	D	98.	A	B	C	D
74.	A	B	C	D	99.	A	B	C	D
75.	A	B	C	D	100.	A	B	C	D

Question 001

Given the following conditions:

- The plant is in Hot Standby.
- RCS temperature is 540°F.
- RCS cooldown is in progress.
- All RCPs are running

Which ONE (1) of the following describes the response of indicated RCS flow as the cooldown continues?

Indicated flow...

A. INCREASES as coolant density INCREASES

B. DECREASES as coolant density INCREASES

C. INCREASES as coolant density DECREASES

D. DECREASES as coolant density DECREASES

Question 002

The plant is operating at 100% power.

RCP Thermal Barrier Return Isolation valve AC-FCV-625 has inadvertently failed closed.

Which ONE (1) of the following describes the effect on RCP temperatures, if any, as a result of this failure?

A. All RCP bearing temperatures will remain the same.

B. #1 Seal Leakoff temperature will rise on all RCPs.

C. RCP Lower Bearing temperature will rise on all RCPs.

D. RCP Motor Bearing temperature will rise on all RCPs.

Question 003

Given the following conditions:

- An ATWS has occurred.
- The team is aligning CVCS for emergency boration.

If the Boric Acid Transfer Pumps tripped and could NOT be restarted, which ONE (1) of the following describes the Charging pump suction flowpath(s) that will remain available for boration in accordance with FR-S.1, Response to Nuclear Power Generation/ATWS?

A. LCV-112B, RWST to Charging Pump suction

B. LCV-112C, VCT Outlet to Charging Pump suction

C. MOV-333, Boric Acid to Charging Pump suction

D. The flow paths from both MOV-333 and LCV-112B

Question 004

Given the following conditions:

- A small break LOCA has occurred.
- The crew is performing the actions in ES-1.2, Post LOCA Cooldown And Depressurization.
- SI pumps have been stopped.
- Normal charging is aligned.
- The crew is depressurizing the RCS using normal spray.

Which ONE of the following describes the strategy for the continuing depressurization?

A. Maximize subcooling to ensure continued RCP operation.

B. Minimize subcooling to reduce RCS break flow.

C. Maximize subcooling to prevent a challenge to the Core Cooling CSF.

D. Minimize subcooling to ensure Pressurizer level remains above the lower limit to allow heater operation during the RCS cooldown.

Question 005

Which ONE (1) of the following describes the effect of an UNDERCOMPENSATED Intermediate Range channel following a reactor trip?

A. The channel will indicate LOW, prematurely energizing the Source Range

B. The channel will indicate LOW, and P-6 will not automatically energize the Source Range until the other Intermediate Range channel is below the required value

C. The channel will indicate HIGH, preventing P-6 from automatically energizing the Source Range

D. The channel will indicate HIGH, but the Source Range will be energized from the other Intermediate Range channel

Question 006

Which ONE (1) of the following describes the MINIMUM Core Exit Thermocouple (CET) input to determine that a RED Path exists on the Core Cooling Critical Safety Function Status Tree?

A. The single highest CET indicates greater than 1200°F

B. The five highest CETs all indicate greater than 1200°F

C. The highest CET in each core quadrant indicates 1200°F

D. The average of the five highest CETs calculated value is greater than 1200°F

Question 007

Given the following conditions:

- The plant is operating at 100% power.
- 31, 32, 33, and 35 FCUs are in service to provide Containment Cooling.
- All Emergency Safeguards Features equipment is operable

Subsequently, reactor trip and Loss of Off-Site power occur. All equipment functions as designed.

Which ONE (1) of the following describes the resulting Containment Cooling lineup?

A. FCUs must be started manually. Cooling water flow is maintained by TCV-1103.

B. Only 31, 32, 33, and 35 FCUs will be in service. Cooling water flow is raised by providing a Service Water flow path parallel to TCV-1103.

C. All FCUs will be in service. Cooling water flow is maintained by TCV-1103.

D. FCUs must be started manually. Cooling water flow is raised by providing a Service Water flow path parallel to TCV-1103.

Question 008

Given the following conditions:

- The plant was operating at 100% power when a Station Blackout coincident with a Safety Injection occurred.
- The Diesel Generators have energized the 480 VAC busses.
- MCCs and lighting busses have **NOT** been reset.

Which ONE (1) of the following identifies the Feedwater System Valve position?

A.
- Main FW Reg. Valves CLOSED
- FW Reg. Bypass Valves CLOSED
- Main Feedwater header isolation valves OPEN
- Feed Pump Discharge Valves CLOSED

B.
- Main FW Reg. Valves CLOSED
- FW Reg. Bypass Valves CLOSED
- Main Feedwater header isolation valves CLOSED
- Feed Pump Discharge Valves CLOSED

C.
- Main FW Reg. Valves OPEN
- FW Reg. Bypass Valves CLOSED
- Main Feedwater header isolation valves OPEN
- Feed Pump Discharge Valves CLOSED

D.
- Main FW Reg. Valves CLOSED
- FW Reg. bypass Valves CLOSED
- Main Feedwater header isolation valves OPEN
- Feed Pump Discharge Valves OPEN

Question 009

Given the following conditions:

- The plant is at 10% power.
- A power increase is in progress.

Which ONE (1) of the following describes the method used to transfer feedwater control to the Main Feedwater Regulating valves in accordance with SOP-FW-1, Main Feedwater System?

A. Manually crack open the Main Feedwater Regulating valve (MFRV). When an increase in feedwater flow is observed, simultaneously close the associated Feedwater Regulating Bypass valve while opening the MFRV. Place the MFRV in AUTO when the Bypass is closed and SG level is stable.

B. Place the MFRV in AUTO. Reduce SG level slightly by closing the MFRV Bypass Valve, and observe the MFRV automatically restores SG level to the setpoint. Continue the process until the MFRV Bypass valve is closed.

C. Manually crack open the MFRV. Ensure SG level is maintained on program by the automatic closure of the MFRV Bypass valve. When the MFRV Bypass valve is closed and SG level is stable at the setpoint, place the MFRV in AUTO

D. Place the MFRV in AUTO. Raise controller output until SG level begins to rise. Manually throttle the MFRV Bypass valve closed, ensuring the MFRV automatically returns SG level to the setpoint.

Question 010

Given the following conditions:

- Reactor trip from 100% power
- All systems function as designed
- 480 Bus 6A is de-energized due to a fault.

Assuming no action taken by the team, which ONE (1) of the following describes the Steam Generators that have AFW flow?

A. All four SGs

B. 31 and 32 SGs

C. 33 and 34 SGs

D. None of the SGs are currently supplied with AFW

Question 011

The In-Service Large Gas Decay Tank has a Hydrogen concentration of 4.8%.

Per TRM 3.7.D, Explosive Gas Monitoring System, which ONE of the following is the highest Oxygen concentration allowed to prevent a flammable mixture in the Waste Gas System?

A. 2%.

B. 3%.

C. 4%.

D. 5%.

Question 012

Which ONE (1) of the following occurs when R-1, Control Room Area Radiation monitor, reaches an alarm condition?

A. The control room ventilation shifts to 100% Incident mode.

B. The control room A/C secures and the ventilation is automatically shut down.

C. Dampers 'A' and 'B' realign, Damper 'C' is throttled, and One Booster Fan Inlet Damper opens.

D. Dampers 'A' and 'B' realign, Damper 'C' opens fully, and Two Booster Fan Inlet Dampers open.

Question 013

Given the following:

- 480V Bus 5A is deenergized due to a fault.
- All other equipment is in the normal configuration when the reactor automatically trips on low Pressurizer pressure.
- Safety Injection has actuated.

Which ONE (1) of the following describes the status of Safety Injection System?

A. Two SI Pumps running and injecting to four RCS cold legs.

B. Two SI Pumps running and injecting to two RCS cold legs.

C. Three SI Pumps running and injecting to four RCS cold legs.

D. Three SI Pumps running and injecting to two RCS cold legs.

Question 014

Given the following conditions:

- The plant is at 93% power after a short transient.
- All control systems are operating in their normal alignments
- Pressurizer PORVs indicate closed
- Pressurizer Spray valves indicate partial open
- Modulating Heaters are energized at minimum output
- One set of backup heaters is on in manual
- All other Backup Heaters are off with control switches in AUTO

Based on the conditions presented, which ONE (1) of the following is the current value of Pressurizer pressure?

A. 2180 psig

B. 2210 psig

C. 2250 psig

D. 2310 psig

Question 015

480 volt bus 6A is de-energized.

Which **ONE** (1) of the following describes the combination of pressurizer heaters that are still available for pressurizer pressure control?

A. Two groups of Backup heaters

B. Three groups of Backup heaters

C. One group of Backup heaters and Modulating heaters

D. Two groups of Backup heaters and Modulating heaters

Question 016

Which ONE (1) of the following reactor trips is designed to protect the core from a departure from nucleate boiling (DNB) condition?

A. Power Range High Flux (high setpoint)

B. Overtemperature-Delta Temperature

C. Overpower-Delta Temperature

D. Pressurizer High Level

Question 017

Given the following conditions:

- The plant is operating at 88% power.
- Rod Control is in MANUAL
- Control Bank D rods are at 200 steps
- All Tavg channels are approximately 4.5°F higher than Tref

Which ONE (1) of the following describes the resulting rod control operation if the Rod Control System Mode Selector Switch is placed in AUTO prior to matching Tave and Tref?

A. Step in at 32 SPM

B. Step out at 32 SPM

C. Step in at 56 SPM

D. Step out at 56 SPM

Question 018

Given the following conditions:

- A LBLOCA has occurred.
- Containment pressure is 33 psig and slowly rising.
- 31 Containment Spay pump is running.
- 32 Containment Spray Pump is tripped and cannot be started.

Which ONE (1) of the following is the **MINIMUM** number of Containment Fan Cooler Units (CFCUs) required to maintain containment pressure less than design?

A. 1

B. 2

C. 3

D. 4

Question 019

Given the following conditions:

- The plant is operating at 100% power.
- Spent Fuel Pit High Temp annunciator is in alarm. Temperature is approximately 135ºF
- Spent Fuel Pit Low Level annunciator is in alarm. Level is approximately 93', 1".
- Investigation reveals 31 SFP Cooling pump has tripped and will not restart
- 32 SFP Cooling pump is tagged out of service
- FSB ventilation is in service
- The Backup Spent Fuel Cooling System CANNOT be placed in service.

Which ONE (1) of the following describes additional actions taken to maintain SFP cooling in accordance with ONOP-SFP-1, Loss of Spent Pool Pit Cooling?

A. Initiate makeup as necessary using the PWST to account for evaporation IAW SOP-SFP-1.

B. Initiate Bleed and Feed cooling of the SFP using the Primary Water Storage Tank.

C. Install a temporary connection to the City Water System to make up to the Spent Fuel Pit.

D. Increase Component Cooling water flow to the SFP heat exchanger and initiate recirculation of the SFP using the SFP Purification loop.

Question 020

Given the following conditions:

- The plant is at 100% power
- All control systems are in their automatic alignments
- The selected 33 SG Steam Flow input fails low
- 33 SG level indicates 26% and trending down
- 31,32,34 SG levels indicate 48% and stable

Which ONE (1) of the following actions is required next in accordance with ONOP-RPC-1?

A. Place 33 SG feedwater regulating valve in manual and restore level to the normal band

B. Select the alternate steam flow channel and ensure 33 SG level is restored in automatic

C. Trip the reactor and enter E-0, Reactor Trip or Safety Injection

D. Restore program DP by raising MBFP speed in manual to match actual steam flow and feed flow

Question 021

Given the following conditions:

- Reactor power is 11%, with a plant startup in progress
- Steam dumps are modulated open in Pressure Control mode
- Tave – 551 degrees F
- RCS press – 2235 psig
- Main Steam Header pressure transmitter PT404 fails at its current pressure value.

Which ONE (1) of the following is the steam dump response as startup continues?

A. Steam dumps modulate based on the Tref/Tave error signal generated as power rises

B. Steam dumps remain open until the Steam Dump Mode Selector Switch is placed in Temperature Control Mode.

C. Steam dumps will modulate closed as power is increased, and will only reopen when the Steam Dump Mode Selector Switch is placed in Temperature Control Mode

D. Steam dumps modulate further open based on the steam pressure input as power is increased, and close when Tave decreases to less than the Low Tave setpoint

Question 022

Given the following:

- The unit is at 100% power.
- All major controls are in AUTO.
- Tave has slowly INCREASED 0.2°F in the last 5 minutes.
- Main Generator output has DECREASED 10 MWe.

Which ONE (1) of the following describes the cause of the above indications?

A. SG Safety Valve leakage.

B. Condenser Air Ejector malfunction.

C. Inadvertent RCS dilution.

D. Inadvertent Control Rod insertion.

Question 023

Battery Charger #35 is being used in place of Battery Charger #31.

Which ONE (1) of the following power supplies will be connected to Battery Charger #35 to maintain operability and Train separation for the #31 DC Bus?

A. MCC 36A.

B. MCC 36C.

C. MCC 36D.

D. MCC 36E.

Question 024

Given the following conditions:

- 31 Emergency Diesel Generator (EDG) is shutdown
- DC control power is unavailable to the 31 EDG

Which ONE (1) of the following describes how the loss of DC control power would affect the EDG operation?

A. The EDG cannot be started by automatic signals or from the local control panel.

B. The EDG would start in response to an automatic signal or from the local control panel.

C. The EDG can only be started manually at the local control panel.

D. The EDG can only be started manually from the Central Control Room or at the local control panel.

Question 025

Given the following conditions:

- The Plant is operating at 100% power.
- 31 EDG is started for surveillance testing.

Which ONE (1) of the following describes how a reverse power condition is prevented when closing the EDG output breaker?

A. Ensure synchroscope is rotating slowly in the 'FAST' (clockwise) direction prior to closing the breaker.

B. Ensure running and incoming currents are matched prior to closing the output breaker.

C. Ensure running and incoming voltages are matched prior to closing the output breaker.

D. Ensure running and incoming frequencies are matched prior to closing the output breaker.

Question 026

Given the following conditions:

- The plant is operating at 81% power.
- A bus fault causes a trip and lockout of the normal feeder to 480 volt bus 3A.
- The cause of the fault has not been determined.

Which ONE (1) of the following describes the effect on Instrument Bus 34?

A. Energized from inverter 34 by DC bus 34, which is energized by Battery Charger 34.

B. Energized from inverter 34 by DC bus 34, which is energized by battery 34.

C. Energized from the alternate AC power supply from MCC 36C.

D. De-energized until manually transferred to the alternate AC power supply from MCC 36B.

Question 027

Given the following conditions:

- A manual reactor trip was initiated during a transient
- Reactor trip did NOT occur
- The team is entering FR-S.1, Response to Nuclear Power Generation/ATWS

Which ONE (1) of the following actions, **if required**, MUST be performed from memory? (Immediate Action)

A. Manually close MSIVs

B. Manually start AFW pumps

C. Open CH-MOV-333, Emergency Boration Valve

D. Start both Boric Acid Transfer pumps in high speed

Question 028

Station Air system pressure decreases and stabilizes at 85 psig.

Which ONE (1) of the following describes the effect on Instrument Air and Station Air systems if the Instrument Air System pressure decreased to 88 psig?

A. Instrument Air pressure will stabilize at 88 psig and Station Air pressure will increase to 88 psig

B. Station Air pressure will remain at 85 psig and Instrument Air pressure will remain at 88 psig when PCV-1142 opens at 90 psig Instrument Air pressure

C. Instrument Air pressure will decrease to 85 psig and Station Air pressure will remain at 85 psig when PCV-1142 opens at 90 psig Instrument Air pressure

D. Station Air pressure will remain at 85 psig and Instrument Air pressure will remain at 88 psig when PCV-1142 opens at 90 psig Station Air pressure

Question 029

Which ONE (1) of the following describes the Fire Protection provided for the Turbine Generator housing and bearings?

A. Dry Pipe sprinkler and Foam

B. Wet Pipe sprinkler and Foam

C. Dry Pipe sprinkler and Carbon Dioxide

D. Wet Pipe sprinkler and Carbon Dioxide

Question 030

The plant is being cooled down to cold shutdown. The following conditions exist:

- RHR has been placed in service.
- RCS TAVG is 220 °F.
- RCS pressure increases rapidly to 600 psig.
- A Pressurizer PORV opens.
- RCS pressure stabilizes at 580 psig.
- NO other actuations have occurred.

Which ONE (1) of the following actions is required in accordance with ONOP-RHR-1?

A. Open AC-MOV-730 and 731 to ensure adequate suction head for the RHR pumps.

B. Open AC-MOV-730 and 731 to ensure an adequate cold over pressurization relief path.

C. Close AC-MOV-730 and 731 to prevent over pressurization of the RHR system.

D. Close AC-MOV-730 and 731 to minimize RCS leakage pathways.

Question 031

Given the following conditions:

- A Large Break LOCA has occurred.
- Both Hydrogen Recombiners are in service.

If one of the operating Recombiners trips, which ONE (1) of the following describes the effect on the removal of Hydrogen from Containment?

A. Hydrogen concentration will remain below 4% with only one Recombiner in operation.

B. Hydrogen concentration will rise above 4% but remain below 13% with only one Recombiner in operation.

C. Hydrogen concentration will remain below 4% only if the Containment Purge System is placed in service in addition to the Recombiner.

D. Hydrogen concentration will remain below 4% only if Containment Spray is placed in service in addition to the Recombiner.

Question 032

Which ONE (1) of the following correctly describes the operation of Containment Iodine Fan Filter Units?

A. May be started manually only. Operated only under non-accident conditions.

B. May be started manually only. Operated under accident and non-accident conditions.

C. May be started manually or automatically. Operated under non-accident conditions only.

D. May be started manually or automatically. Operated under accident and non-accident conditions.

Question 033

Given the following conditions:

- The plant is in Hot Standby
- Plant startup is in progress
- Steam dumps are modulating as required per procedure
- RCS temperature indicates 547°F

Which ONE (1) of the following actions will INCREASE steam flow through the Main Condenser steam dumps?

A. Withdraw Shutdown Bank "A" rods

B. Raise the steam dump pressure setpoint

C. Lower the steam dump pressure setpoint

D. Place steam dump control in "Temperature Control" mode

Question 034

Given the following conditions:

- A reactor trip and safety injection has occurred.
- Transition was made to E-1, Loss of Reactor or Secondary Coolant.
- In accordance with RO-1, you are required to direct the Nuclear NPO to restart #31 PAB exhaust fan.

Which of the statements below correctly identifies the actions required to start this fan?

A. Transfer to the alternate power supply (MCC-312) for #31 PAB exhaust fan and start the fan.

B. Transfer the Fan Selector Switch to the Exhaust Fan #31 - Containment Building Purge Fan position and start the 31 PAB exhaust fan.

C. Ensure the Fan Selector Switch is selected to the Exhaust Fan #31 - PAB Supply fan position and start the fan

D. Remove the thermal overloads for PAB Supply fan and close the breaker then start #31 PAB Exhaust Fan.

Question 035

Which ONE (1) of the following sets of tags can be hung simultaneously on the same component, in accordance with AP-10.1, Protective Tagging?

A. A Danger and a Caution tag

B. Two (2) Test and Maintenance tags

C. A Danger tag and a Test and Maintenance tag

D. A Caution tag and a Test and Maintenance tag, only if each holder signs onto both tagouts.

Question 036

Given the following conditions:

- The Control Rod Full Out position is 230 steps.
- The Bank Overlap Unit is set for normal operation.

During rod withdrawal, when Control Bank "B" reaches full out position, what will be the position of Control Bank "C"?

A. 000 steps

B. 104 steps

C. 126 steps

D. 230 steps

Question 037

The following plant conditions exist during a mid-cycle reactor start-up:

- The MSIVs are closed
- The reactor is critical below the Point of Adding Heat (POAH)
- Tavg is at the normal No-Load value.
- RCS Boron is 850 PPM.
- Bank D at 180 steps.
- The RO withdraws control rods 12 steps.
- Startup rate is 0.3 DPM.

Without further action, which ONE (1) of the following describes the plant response to the rod withdrawal?

When the Point of Adding Heat is reached,

A. T_{avg}, power level, pressurizer pressure and level will all increase until the reactor trips at 10% power.

B. T_{avg}, power level, pressurizer pressure and level will increase until the condenser steam dumps open to stabilize power at a higher level.

C. T_{avg}, power level, pressurizer pressure and level will increase until the atmospheric steam dumps open to stabilize power at a higher level.

D. T_{avg} will increase which will add negative reactivity causing power to decrease, which will drive the reactor sub-critical unless rods are withdrawn further.

Question 038

Given the following conditions:

- The plant is in Mode 5.
- Preparations are underway for a Containment Purge.
- Purge Supply and Exhaust isolation valves are open
- The selected fans control switch is placed in CLOSE

Which ONE (1) of the following describes the events that would automatically terminate or discontinue the purge?

A. If smoke is detected, the operating fans trip, and the Containment Purge isolation valves must be manually closed.

B. If selected fans do not start within 60 seconds, the isolation valves will close.

C. If WCCPPS pressure is not released within 190 seconds, the fans will not start.

D. If the Fire Detection System Fan Interlock Bypass switch is in BYPASS, the fans will not start.

Question 039

How are EOP substeps designated if they must be performed in the order in which they are listed?

A. Substeps are designated by bullets

B. The entire step is surrounded by a solid line

C. The major step is designated with an asterisk

D. Substeps are designated by alpha-numeric characters

Question 040

Which of the following is the LOWEST emergency classification at which the Emergency Operations Facility (EOF) MUST be activated?

A. Unusual Event

B. Alert

C. Site Area Emergency

D. General Emergency

Question 041

Given the following conditions:

- A rapid load reduction from 100% to 70% power was performed.
- Control Bank D rods were inserted to 180 steps.
- One Control Bank D rod did not move and is currently at 214 steps.

Which ONE (1) of the following describes a concern associated with the rod misalignment?

A. Xenon buildup in the area of the stuck rod may immediately affect core power distribution

B. Xenon burnout in the area of the stuck rod may immediately affect core power distribution

C. Xenon buildup in the area of the inserted rods may affect core power distribution if left uncorrected

D. Xenon burnout in the area of the inserted rods may affect core power distribution if left uncorrected

Question 042

The team is preparing to cool down the plant to Cold Shutdown in accordance with ES-0.2, Natural Circulation Cooldown.

What is the maximum allowed cooldown rate and why is this limit imposed?

A. Less than 50°F per hour to prevent exceeding Tech Spec cooldown limits

B. Less than 50°F per hour to minimize the probability of creating a void in the reactor vessel

C. Less than 25°F per hour to prevent exceeding Tech Spec cooldown limits

D. Less than 25°F per hour to minimize the probability of creating a void in the reactor vessel

Question 043

Given the following conditions:

- An ATWS has occurred.
- The team is performing actions of FR-S.1, Response to Nuclear Power Generation/ATWS.
- The team has initiated Emergency Boration.
- All equipment has operated as designed.
- SI is NOT actuated.
- RCS pressure is 2210 psig and Trending DOWN.
- Tavg is 567°F and Trending DOWN.

Which ONE (1) of the following describes plant response to initiation of the boration?

A. Boric Acid Tank level will be dropping at a rate approximately equal to Charging flow.

B. Volume Control Tank level will be dropping at a rate approximately equal to Charging flow.

C. Refueling Water Storage Tank level will be dropping at a rate approximately equal to Charging flow.

D. Pressurizer level will be rising at a rate approximately equal to Charging flow.

Question 044

Given the following conditions:

- The plant is in Mode 5
- RCS temperature is 190°F
- A loss of Off-site power occurs.
- EDGs do NOT load onto the 480 volt busses
- Power is restored to the 480 volt busses from off-site
- When restoring CCW, the pump control switch is placed in STOP/OFF prior to starting the pump.

Which ONE (1) of the following describes the reason for placing the pump control switch in STOP/OFF?

A. It resets the pump 86 lockout relay

B. It charges the breaker closing spring

C. It resets the common annunciator

D. It bypasses the Low Pressure Start signal for 60 seconds

Question 045

Given the following conditions:

- The plant is at 100% power.
- All control systems are in their normal automatic alignments.
- Pressurizer pressure channel PT-455 indicates 2275 psig and slowly rising.
- All other narrow range pressurizer pressure indications are 2220 psig and slowly dropping

Which ONE (1) of the following actions is required next in accordance with ONOP-RPC-1?

A. Place the pressurizer pressure controller in manual and control RCS pressure.

B. Place the affected PORV control switch in 'close'.

C. Reset and reenergize pressurizer heaters.

D. Trip the reactor; enter E-0, Reactor Trip or Safety Injection.

Question 046

Which ONE (1) of the following sets of conditions will result in the MOST SEVERE reactivity excursion during a Main Steam Line Break?

A. 10% power, RCS Boron = 200 ppm

B. 10% power, RCS Boron = 1200 ppm

C. 100% power, RCS Boron = 200 ppm

D. 100% power, RCS Boron = 1200 ppm

Question 047

During the performance of ECA-2.1, Uncontrolled Depressurization of All Steam Generators, the following plant condition exists:

- Cooldown rate of the RCS is greater than 100°F/hour

How is the team directed to control feedwater flow?

A. Feedwater flow is terminated to all but a single intact S/G, which is fed at 100 gpm

B. Feedwater flow is maintained at least 365 gpm total until any SG narrow range is >9%

C. Feedwater flow is maximized to any one S/G until narrow range level in any SG is >9%

D. Feedwater flow is reduced to 100 gpm to each S/G with narrow range level less than 9%

Question 048

Given the following conditions:

- The Unit is operating at 100% power with all systems in automatic alignments.
- The crew is referring to the ARPs due to a condenser vacuum alarm.

Assuming no action has been taken by the crew, which ONE of the following describes the response of the rod control system to this event?

Control rods will automatically...

A. insert due to the rise in condenser backpressure causing a rise in Tavg – Tref deviation.

B. insert due to the drop in condenser backpressure causing a rise in Tavg – Tref deviation.

C. withdraw due to the rise in condenser backpressure causing a drop in Tavg – Tref deviation.

D. withdraw due to the drop in condenser backpressure causing a drop in Tavg – Tref deviation.

Question 049

Given the following plant conditions:

- Reactor Trip and Turbine Trip has occurred from 100% power
- Loss of all AC power has occurred
- Each Steam Generator Atmospheric Dump Valve controller's output is 100% demand
- Steam Driven Auxiliary Feedwater Pump is supplying feedwater to all four Steam Generators
- Indicated Steam Flow is 0 pounds mass per hour from all S/Gs approximately 30 minutes after the trip

Which ONE (1) of the following statements explains the steam flow indication?

A. Main Steam Isolation Valves closed on an automatic isolation signal.

B. Main Steam Isolation Valves closed on loss of AC power.

C. Steam Generator Atmospheric Dump Valves closed on loss of Instrument Air.

D. Steam Generator Atmospheric Dump Valves closed on loss of AC power.

Question 050

Given the following conditions:

- The plant is at 80% power.
- A loss of Instrument Bus 31 has occurred.

Which ONE (1) of the following statements describes why the HI-HI Containment Pressure relays are blocked when performing the appropriate attachment in accordance with ONOP-EL-3?

A. Blocks inadvertent actuation of Containment Spray in the case of a redundant channel failure

B. Provides a channel trip of Containment Spray to change the coincidence to 1 out of 3 for Spray actuation

C. Makes up part of the coincidence circuitry for Spray initiation, since Containment Spray relays are energized to actuate

D. Blocks the actuation signal from the channel supplied from the de-energized instrument bus from causing an inadvertent Phase B containment isolation signal

Question 051

Given the following conditions:

- A plant cooldown is in progress.
- RHR is NOT yet in service.
- COMPONENT COOLING SURGE TANK #31 LEVEL annunciator (Panel SGF) alarms.
- Local investigation reveals no obvious cause for the problem. The level in both surge tanks is slowly decreasing.

Based on this information/indication, which ONE (1) of the following is the cause of the problem?

A. A leak exists in a RCP thermal barrier heat exchanger.

B. A tube leak exists in #31 CCW heat exchanger.

C. A tube leak exists in non-regenerative heat exchanger.

D. An excessive primary plant cooldown rate exists.

Question 052

The plant has been operating at steady state conditions at 100% power for the past 30 days.

Number 1 seal return flow has dropped rapidly from 3.0 GPM to O.9 GPM, and the "Reactor Coolant Pump Standpipe High Level" alarm has annunciated for RCP 31.

Which ONE (1) of the following describes the reason for these indications?

A. RCP Seal No. 1 Failure

B. RCP Seal No. 2 Failure

C. RCP Seal No. 3 Failure

D. Loss of Seal Injection flow

Question 053

Given the following conditions:

- A small break LOCA has occurred.
- Due to a CSF Red Path, the team entered FR-C.1, Response to Inadequate Core Cooling, and restored Safety Injection flow
- The team is currently performing the actions in E-1, Loss Of Reactor Or Secondary Coolant
- Core exit thermocouples indicate approximately 520°F.
- RCS pressure indicates approximately 800 psig.

Which ONE (1) of the following describes the status of the Reactor Coolant System throughout this event?

A. Saturated upon entry to FR-C.1; Saturated at the present time

B. Saturated upon entry to FR-C.1; Subcooled at the present time

C. Superheated upon entry to FR-C.1; Superheated at the present time

D. Superheated upon entry to FR-C.1; Saturated at the present time

Question 054

Following a LOCA with subsequent ECCS failures, the crew is performing the actions in FR-C.2, Response To Degraded Core Cooling.

- RCS pressure is rising.
- Pressurizer Pressure High annunciator on Panel SAF is Lit
- Core Cooling has NOT been restored

Which ONE (1) of the following describes the required operation of the Pressurizer PORVs in this event?

A. Leave closed and isolated until required to establish a vent path prior to RCP restart.

B. Verify they operate automatically or operate manually for RCS overpressure control if necessary.

C. Leave closed and isolated to prevent further loss of RCS inventory.

D. Open to depressurize the RCS to facilitate SI accumulator injection

Question 055

What is the primary purpose of depressurizing the steam generators in response to a degraded core-cooling situation?

A. To collapse the steam voids and enhance reflux cooling in the RCS

B. To increase the primary to secondary thermal driving head for natural circulation

C. Clear the loop seal and vent steam to provide maximum cooling from the RHR pumps

D. The cooldown and depressurization of the RCS will facilitate core recovery via the SI accumulators

Question 056

Given the following conditions:

- A rapid load reduction from 100% power to 65% power was performed approximately 3 hours ago.
- R-63A and R-63B, RCS Gross Failed Fuel monitors, are in alarm.
- R-4, Charging Pump Room Area Radiation Monitor, is in alarm.
- Chemistry confirms RCS activity exceeds Technical Specification limits.

The CRS directs a plant shutdown be performed.

Which ONE (1) of the following actions is designed to limit the release of radioactivity in the event of a subsequent SGTR?

A. MSIVs are closed.

B. All SG Atmospheric Dump valve setpoints are raised.

C. RCS is cooled down below 500°F.

D. Maximum Condensate Polishers are placed in service.

Question 057

Given the following conditions:

- The plant is at 100% power.
- All control systems are operating in their normal alignments
- Tavg and Tref are matched and stable
- Control Bank D begins stepping out at a rate of 8 steps per minute.
- The CRS directs entry to ONOP-RC-2, Rod Control System Malfunction

Which ONE (1) of the following conditions will require initiation of a manual reactor trip in accordance with ONOP-RC-2?

A. Rod motion continues beyond actuation of the OT Delta T rod stop

B. Any control rod drop during the rod motion

C. Rod motion continues with the bank selector switch in MANUAL or BANK SELECT

D. Rod motion continues beyond actuation of any Power Range High Flux Rod Stop

Question 058

Given the following conditions:

- The plant is at 100% power.
- All control systems are in their automatic alignments
- The following annunciator is received on Panel SBF
  - Rod Control Non-Urgent Failure

- Investigation determines that a failure of a redundant power supply in Power Cabinet 2AC is the cause of the alarm.
- Rod Control is placed in Manual per the ARP

If the other redundant power supply to Power Cabinet 2AC were to fail, which ONE (1) of the following conditions would result?

A. Rods controlled by Power Cabinet 2AC would drop

B. All rod motion by rods controlled by Power Cabinet 2AC would be frozen

C. The Bank Overlap Unit would reset to zero

D. One reactor trip breaker would lose control power and the reactor would trip

Question 059

Given the following conditions:

- Pressurizer pressure is 985 psig
- Pressurizer Relief Tank pressure is 5 psig
- PRT temperature is 90°F
- The reactor is shut down

If a pressurizer safety valve begins to leak, which ONE (1) of the following is the temperature seen downstream of the leaking valve?

A. 230°

B. 300°

C. 340°

D. 550°

Question 060

Given the following conditions:

- Reactor trip and safety injection have occurred.
- RCS pressure is 450 psig and stable
- Containment pressure is 0.7 psig and rising

If the break is at the SI Cold Leg discharge line connection to loop 31, which ONE (1) of the following describes the SI flow indication in the CCR?

A. SI flow indication is approximately equal in all 4 loops. RHR flow is zero in all 4 loops.

B. SI flow and RHR flow to loop 31 is off-scale high. SI flow to loops 32, 33, 34 is reduced. RHR flow to loops 32, 33, 34 is zero.

C. SI flow is zero to loop 31. SI flow to loops 32, 33, 34 is elevated. RHR flow is zero to all 4 loops.

D. SI flow to loop 31 is off-scale high. SI flow to loops 32, 33, 34 is reduced. RHR flow to all loops is zero.

Question 061

Given the following conditions:

- The reactor has tripped. Safety Injection and Containment Spray have actuated.
- The team is performing the actions of E-1, Loss of Reactor or Secondary Coolant
- RCS pressure is 20 psig.
- RHR flow is 3000 gpm.
- Containment Sump level is rising rapidly.
- SG pressures are approximately 680 psig and stable.
- A Red Path exists on the Integrity Status Tree
- The CRS directs transition to FR-P.1, Response to Imminent Pressurized Thermal Shock
- The procedure immediately sends the team back to E-1

Based on the above plant conditions which ONE (1) of the following states the reason for the procedure transition from FR-P.1 back to E-1?

A. The RCS cooldown and pressure reduction performed in FR-P.1 are not required during a Large Break LOCA.

B. A Small Break LOCA has priority over Pressurized Thermal Shock concerns.

C. Faulted SG isolation must occur prior to transition to a Functional Recovery Procedure.

D. Since Safety Injection cannot be terminated, FR-P.1 provides an immediate transition back to E-1.

Question 062

Procedure ES-0.0, "REDIAGNOSIS" is implemented...

A. at the discretion of the CRS anytime during the performance of the Emergency Operating Procedures.

B. when directed to do so according to criteria listed on the foldout page of the current procedure in effect.

C. only after transition out of E-0 has occurred when Safety Injection has been actuated.

D. at the discretion of the CRS, but only after completion of a Functional Restoration Procedure.

Question 063

Assuming no operator actions are taken, which ONE of the following describes the plant conditions following VCT level channel LT-112 failure HIGH?

A. Increasing VCT level and letdown diverted to the HUT.

B. Decreasing VCT level and loss of NPSH to the charging pumps.

C. Increasing VCT level and continuous makeup from the blender to the VCT.

D. Decreasing VCT level and auto swapover of the charging pump suction to the RWST.

Question 064

Given the following conditions:

- RHR is in service at Reduced Inventory conditions.

Which ONE (1) of the following indications are used to determine if cavitation is occurring?

A. RHR flow and pump amps increasing as RCS inventory is raised.

B. RHR flow and pump discharge pressure oscillations.

C. RHR pump discharge pressure and RVLIS Full Range level oscillations.

D. RHR flow high coincident with RVLIS Full Range level low.

Question 065

Given the following conditions:

- RCS pressure is 1000 psig and trending down.
- Safety Injection has actuated.
- 31 SG NR level is 5% and trending down, pressure is 500 psig and trending down slowly.
- 32 SG NR level is 7% and trending down, pressure is 480 psig and trending down slowly.
- 33 SG NR level is 3% and trending down, pressure is 490 psig and trending down slowly.
- 34 SG NR level is 3% and trending down, pressure is 500 psig and trending down slowly.
- Total AFW flow is 180 GPM
- Containment pressure is 4 psig and rising.
- The team is preparing to transition from E-0, Reactor Trip or Safety Injection.

Which ONE (1) of the following procedures will be entered under these conditions?

A. E-2, Faulted Steam Generator Isolation.

B. FR-H.1 Response to Loss of Secondary Heat Sink.

C. FR-H.5, Response to Steam Generator Low Level.

D. ECA-1.2, Uncontrolled Depressurization of All Steam Generators.

Question 066

Given the following conditions:

- The plant is at 100% power.
- A Loss of Instrument Air pressure has occurred
- The CRS has directed entry to ONOP-IA-1, Loss of Instrument Air

Which ONE (1) of the following plant conditions will require a reactor trip in accordance with ONOP-IA-1?

A. Instrument Air pressure cannot be maintained above 60 psig

B. Essential Service Water header pressure indicates less than 60 psig

C. Loss of 31, 32, and 33 Instrument Air Compressors

D. Loss of Charging Pump Speed Control

Question 067

Given the following conditions:

- The plant is in Mode 3.
- 31 and 33 Auxiliary Boiler Feed Pumps (ABFPs) are in service feeding all 4 SGs.
- 125 VDC control power to the 33 ABFP is lost.

Which ONE (1) of the following describes the effect on the operation of 33 ABFP?

A. Breaker indication in CCR is lost
CCR breaker control is lost
Pump will trip

B. Breaker indication is available
CCR breaker control is lost
Pump will trip

C. Breaker indication in CCR is lost
CCR breaker control is lost
Pump remains running

D. Breaker indication in CCR is available
CCR breaker control is lost
Pump will remain running

Question 068

Which of the Area Radiation Monitors (ARMs) has an automatic action (other than an alarm) when the alarm setpoint is reached?

A. R-2 Vapor Containment ARM

B. R-5 Fuel Storage Building ARM

C. R-7 Incore Instrumentation Room ARM

D. R-4 Charging Room ARM

Question 069

Given the following conditions:

- A Steam Generator Tube Rupture has occurred.
- The team is performing actions contained in E-3, Steam Generator Tube Rupture.

Which ONE (1) of the following describes the reason for reducing RCS pressure to match ruptured SG pressure in E-3?

A. To eliminate concern for SG overfill and damage to secondary side steam piping.

B. To restore RCS inventory and reduce break flow prior to stopping ECCS pumps.

C. To minimize the probability of a Pressurized Thermal Shock event when RCS cooldown is commenced.

D. To ensure there will be no release of radioactivity through the SG Atmospheric Dump valves for the duration of the SGTR.

Question 070

Given the following conditions:

- The plant is at 100% power. All control systems are in automatic.
- Steady state conditions exist.
- The controlling pressurizer level channel, LT-460, slowly fails high.

Without operator action, which ONE (1) of the following describes the response of charging and letdown?

A. Charging flow will decrease due to the level channel failure, and the letdown isolation valve, LCV-460, will close.

B. Charging flow will decrease due to the level channel failure, and the letdown isolation valve, LCV-459, will close.

C. Charging flow will increase due to the level channel failure, and the letdown isolation valve, LCV-460, will close.

D. Charging flow will increase due to the level channel failure, and the letdown isolation valve, LCV-459, will close.

Question 071

Given the following conditions:

- The plant was at 100% power, BOL
- A loss of off-site power has occurred
- Subsequently, a loss of CCW required a reactor trip and a trip of all RCPs

Which ONE (1) of the following describes the response of the reactor core ΔT from the time the RCPs are tripped until one hour later in the event?

Core ΔT...

A. Rises as natural circulation is being established, then remains constant as heat removal is established with the atmospheric steam dumps

B. Rises as natural circulation is being established, then lowers as decay heat load diminishes and heat removal is controlled by the atmospheric steam dumps

C. Lowers as natural circulation is being established, then remains constant as heat removal is established with the atmospheric steam dumps

D. Lowers as natural circulation is being established, the rises as decay heat load diminishes and heat removal is controlled by the atmospheric steam dumps

Question 072

Given the following conditions:

- A reactor startup is in progress.
- Intermediate Range N35 and N36 indicate approximately $3X10^{-11}$ amps and rising at approximately 0.2 DPM

Which ONE (1) of the following states the approximate indication on Source Range channels N31 and N32?

A. 10^2 CPS

B. 10^3 CPS

C. 10^4 CPS

D. 10^5 CPS

Question 073

An Urgent Failure has occurred in the 1BD Power Cabinet.

Which ONE (1) of the following describes rod control capability from the Control Room?

A. All rod motion is inhibited.

B. All Bank D rods will move in MANUAL or INDIVIDUAL BANK SELECT mode.

C. All Bank B and D rods will move only in INDIVIDUAL BANK SELECT mode.

D. Bank D Group 2 rods will move only in INDIVIDUAL BANK SELECT mode.

Question 074

The plant is operating at 80% power.

Which ONE (1) of the following actions will result in an INCREASE in Shutdown Margin?

A. Withdrawing control bank D 3 steps to raise Tavg

B. Lowering Condenser Steam Dump setpoint by 50 psi

C. Initiating boration to control Axial Flux Difference within the target band

D. Inserting control bank D 10 steps to restore Axial Flux Difference to the target band

Question 075

Given the following conditions:

- The plant was operating at 100% power.
- A PORV failed open.
- The reactor has tripped on low pressurizer pressure.
- Pressurizer pressure is at 1700 psig and dropping.
- Containment pressure is 0.4 psig and rising slowly

Plant status is as follows:

- All control rods are fully inserted.
- Normally running Charging pump is in service.
- No SI or RHR pumps running.
- CIA not actuated.
- CIB not actuated.
- Main Steam Lines not isolated.
- Feedwater Isolation not actuated.

Which ONE (1) of the following describes the actuation(s) that must be manually performed in E-0, Reactor Trip or Safety Injection?

A. Safety Injection only.

B. Main Steam Line Isolation only.

C. Safety Injection and Main Steam Line Isolation.

D. Safety Injection, Main Steam Line Isolation, and Containment Spray.

Question 076

Which ONE (1) of the following actions is a continuous action after evacuating the control room using ONOP-FP-1A, Safe Shutdown From Outside The Control Room?

A. Check the reactor SUBCRITICAL using N38 Source Range.

B. Maintain Narrow Range SG level between 10% and 50%.

C. Vent the Main Generator Hydrogen if H2 pressure remains greater than 50 psig.

D. Maintain the EDGs running at no load if offsite power is available.

Question 77

Due to a ventilation failure in the electrical tunnel, the Train A qualified core exit thermocouple junction box is 20°F higher than the Train B qualified core exit thermocouple junction box.

Which ONE (1) of the following describes the core exit thermocouple (CET) readings as displayed on the plant computer during this event? (There are no other failures)

A. Train A qualified CETs will be 20°F higher than Train B; their relationship to the non-qualified CETs cannot be determined from the above.

B. Train A qualified CETs will be the same as Train B; their relationship to the non-qualified CETs cannot be determined from the above.

C. Train A qualified CETs will be the same as Train B; both trains will be 20°F lower than the non-qualified CETs.

D. Train A qualified CETs will be the same as Train B; both trains will be the same as the non-qualified CETs.

Question 078

Given the following conditions:

- Reactor startup is in progress
- While stabilizing power at 1.0 E-8 amps, IR nuclear power suddenly dropped by one-third decade and continued to decrease at a -0.3 dpm SUR
- There was no significant change in Tavg
- The Control Bank D step counters now read 119 steps
- The individual rod position indication for all Control Bank D Group 1 rods indicates 0 steps
- All other rod position indications are unchanged

Which ONE (1) of the following can be determined from these indications?

A. An ATWS has occurred, because more than one dropped rod would have caused an automatic reactor trip.

B. The Control Bank D Group 1 step counter has failed, because it should read zero when all of the rods in this group are fully inserted.

C. The Control Bank D step counters and the associated individual rod position indicators are consistent with a multiple dropped rod accident.

D. Either the Control Bank D step counters, or the individual rod position indicators, have failed, but there is not enough information to determine which ones have failed.

Question 079

Given the following conditions:

- The plant is at 92% power.
- All equipment is operating as required
- 31 Condensate Booster pump is in service but is no longer required
- The CRS directs removal of 31 Condensate Booster pump from service

Which ONE (1) of the following actions may have to be taken as a result of removing the Condensate Booster Pump from service?

Action may have to be taken to remove windup from...

A. Feedwater Heater level control valves, to prevent the Feedwater Heaters from a high level condition

B. Feedwater Heater level control valves, to prevent the Feedwater Heaters from a low level condition

C. Heater Drain Tank level control valve, to prevent the Heater Drain Tanks from a high level condition

D. Heater Drain Tank level control valve, to prevent the Heater Drain Tanks from a low level condition

Question 080

How are the Motor Driven Auxiliary Boiler Feed Pumps (ABFPs) protected from runout conditions at IP3?

A. Maximum AFW flow is limited by the design of the AFW pump flow control valves

B. AFW flow is measured and provides an input to the AFW regulating valve control circuit to limit pump flow

C. AFW pump discharge pressure is measured and provides an input to the AFW regulating valve control circuit to limit pump discharge pressure

D. AFW pump discharge flow is limited by flow-restricting venturis on the pump discharge lines

Question 081

Consider the following Process Radiation Monitors:

1. R-15, Air Ejector Gas Monitor
2. R-17, Component Cooling Water Monitor
3. R-18, Waste Disposal Liquid Monitor
4. R-61, Condensate Polisher Overboard Monitor

When in the alarm condition, which ONE (1) of the following choices lists ONLY monitors that will cause an automatic action to occur?

A. 1, 2, and 3

B. 1, 2, and 4

C. 1, 3, and 4

D. 2, 3, and 4

Question 082

Which ONE (1) of the following describes three sources of liquid waste to the Reactor Coolant Drain Tank?

A. Recirculation sump, Containment sump, Reactor cavity sump

B. Fan cooler leak-off, CCW surge tank, SG blowdowns

C. Non-regenerative heat exchange divert, Chemical Drain Tank, 31 Sump Tank

D. RCS loop drains, RCP seal leak-off, Excess Letdown heat exchanger divert

Question 083

Given the following conditions:

- The plant is at 95% power.
- All control systems are in their normal automatic alignments
- A Condensate system perturbation causes 33 Condensate pump to trip
- Subsequently, 32 Condensate pump trips.

Assuming no operator action, which ONE (1) of the following describes the response of the plant?

A. Both MBFPs trip on low suction pressure, the reactor will trip on Lo-Lo SG levels

B. Condensate Booster pumps will automatically start and maintain the required Condensate flow. SG levels will drop, then return to the normal band.

C. The MBFP cutback circuitry will act to limit the drop in MBFP suction pressure. The reactor will eventually trip on Lo-Lo SG levels due to the loss of 2 Condensate pumps

D. The MBFP cutback circuitry will act to limit the drop in MBFP suction pressure. As the MBFP speed controllers reduce MBFP speed, a turbine runback will occur and reactor power will stabilize at a lower value

Question 084

Which of the following statement most correctly describes use of the Reactor Vessel Level Instrumentation System (RVLIS) following a loss of coolant accident (LOCA)?

A. When RCPs are running, the dynamic range is used and indicates coolant void content.

B. When RCPs are running, the full range is used and indicates liquid level in the reactor vessel.

C. When RCPs are stopped, the full range is used and indicates coolant void content.

D. When RCPs are stopped, the dynamic range is used and indicates liquid level in the reactor vessel.

Question 085

Given the following conditions:

- The plant is at 100% power.
- All control systems are in their normal alignments.
- Instrument Bus 34 loses power and is de-energized

Which ONE (1) of the following describes the effect on the feedwater system?

A. All Main Feed Regulating valves will fail AS IS

B. All Main Feed Regulating valves will fail CLOSED

C. ONLY 34 Feed Regulating Valve will fail AS IS

D. ONLY 34 Feed Regulating valve will fail CLOSED

Question 086

While at 20% power with a power ascension in progress, RCP 31 trips due to an overcurrent condition.

No operator action has been taken and no rod motion has occurred.

Which ONE (1) of the following describes the INITIAL reactor and Loop 31 response?

A. A reactor trip WILL occur and Loop 31 Tavg will INCREASE.

B. A reactor trip WILL occur and Loop 31 Tavg will DECREASE.

C. A reactor trip WILL NOT occur and Loop 31 Tavg will DECREASE.

D. A reactor trip WILL NOT occur and Loop 31 Tavg will INCREASE.

Question 087

The valve lineups were performed to swap the ESSENTIAL Service Water Header from the 34/35/36 Service Water Pumps to the 31/32/33 Service Water Pumps.

HOWEVER, the Service Water Pump MODE selector switch on CCR safeguards panel SBF-1 was inadvertently left in the 4-5-6 position.

Assuming no operator action, which ONE (1) of the following systems WILL be supplied by Service Water if a Safety Injection actuation were to occur?

A. Emergency Diesel Generators.

B. CCW Heat Exchangers.

C. Containment Recirculation Fan Cooling Coils.

D. Instrument Air Compressors.

Question 088

Given the following conditions:

- The plant was operating at 78% power.
- All Service Water Cooling was lost.
- All Circulating Water pumps were tripped.
- All equipment functioned as designed.
- The CRS has directed transition to ES-0.1, Reactor Trip Response

Which ONE (1) of the following describes the approximate Tavg 10 minutes following the reactor trip?

A. 541-544°F

B. 545-547°F

C. 548-550°F

D. 553-555°F

Question 089

31, 32, and 33 Service Water pumps are aligned to the Essential Service Water header.

Which ONE (1) of the following states the power supplies aligned to the associated Zurn strainers?

A. MCC 312A

B. MCC 37 and 39

C. MCC 36A or 36B

D. 480 volt bus 5A, 2A and 6A

Question 090

TCV-130, Component Cooling Water Return from the Non-Regenerative Heat Exchanger Temperature Control Valve, fails due to a broken air line.

Assuming no action by the team, which ONE (1) of the following describes the effect of this failure on the plant?

A. Letdown temperature goes up; the rise in letdown temperature causes the letdown demineralizers to remove less boron, resulting in a minor dilution.

B. Letdown temperature goes down; the decrease in letdown temperature causes the letdown demineralizers to remove more boron, resulting in a minor dilution.

C. Letdown temperature goes up; the rise in letdown temperature causes the letdown demineralizers to remove less boron, resulting in a minor boration.

D. Letdown temperature goes down; the decrease in letdown temperature causes the letdown demineralizers to remove more boron, resulting in a minor boration.

Question 091

AP-21, Conduct of Operations, describes the "Departure From License Condition" which can be invoked to protect the health and safety of the public.

Which of the following conditions must ALWAYS be met when departing from a license condition or technical specification in accordance with 10 CFR 50.54 (x) and (y)?

A. The action must be necessary to prevent equipment damage.

B. The action must be approved by a licensed SRO prior to taking the action.

C. The NRC must be notified prior to the action and must concur with the action to be taken.

D. The action must be approved by the Plant Manager when the action is necessary to protect plant personnel.

Question 092

You have been directed to perform a Surveillance Test that is part of a Post Maintenance Test (PMT).

Which ONE (1) of the following describes a condition where a step in the Surveillance Test may be marked 'N/A'?

A. To change the conditions or intent of the test.

B. A precaution or limitation of a test is not applicable.

C. To designate components that are not being used as part of the PMT.

D. To identify required components that are out of service during the performance of a test..

Question 093

A log reading required to satisfy a Technical Specification LCO surveillance requirement every 12 hours was taken at Midnight. (0000 Hours)

In accordance with OD-36, Operator Rounds and Log sheets, which ONE (1) of the following is the LATEST time the reading may be taken and still be within the allowable surveillance interval?

A. 1200

B. 1300

C. 1400

D. 1500

Question 094

Given the following conditions:

- Mode 1 at 100% when a LBLOCA occurred.
- A General Emergency has been in effect for 6 hours.

Which ONE (1) of the following is the TEDE limit for performing Life-Saving actions?

A. 5 Rem

B. 25 Rem

C. 75 Rem

D. 250 Rem

Question 095

Which ONE (1) of the following describes the EOP implementation hierarchy in the event of a reactor trip concurrent with a loss of AC power to all AC Emergency Busses?

A. Enter ECA-0.0, Loss Of All AC Power directly. Suspend actions in ECA-0.0 and enter the appropriate FRP only upon a CSF Status Tree RED path condition.

B. Enter ECA-0.0, Loss Of All AC Power directly and regardless of the CSF Status Trees, continue in ECA-0.0 until AC power is restored to the AC emergency busses.

C. Transition to ECA-0.0, Loss Of All AC Power from E-0, Reactor Trip Or Safety Injection. Suspend actions in ECA-0.0 and enter the appropriate FRP only upon a CSF Status Tree RED path condition.

D. Transition to ECA-0.0, Loss Of All AC Power from E-0, Reactor Trip Or Safety Injection. Suspend actions in ECA-0.0 and enter the appropriate FRP upon any CSF ORANGE or RED path condition.

Question 096

WHICH ONE of the following states the basic actions required to start 32 Charging Pump when a fire in the Control Room requires a plant shutdown using the Alternate Safe Shutdown Equipment?

A. Transfer 32 Charging Pump to Alternate Feed using transfer switch on MCC-312A, close disconnect switch on MCC-312A, and start pump using local control switch in 32 Charging Pump Room.

B. Transfer 32 Charging Pump to Alternate Feed at transfer cabinet in 32 Charging Pump Room, close disconnect switch in 32 Charging Pump Room, and start pump using local control switch in 32 Charging Pump Room.

C. Transfer 32 Charging Pump to Alternate Feed using transfer switch on MCC-312A, close disconnect switch in 32 Charging Pump Room, and start pump using key-switch on MCC-312A.

D. Transfer 32 Charging Pump to Alternate Feed at transfer cabinet in 32 Charging Pump Room, close disconnect switch on MCC-312A, and start pump using key-switch on MCC-312A.

Question 097

Which ONE (1) of the following Unit 3 Radiation Monitoring System channels in alarm will require action IAW ECA-1.2, LOCA Outside Containment?

A. R-5, Fuel Storage Building area monitor

B. R-16A, FCU Common Discharge Liquid monitor

C. R-15, Condenser Air Ejector effluent process monitor

D. R-14, Plant Vent Radiogas monitor

Question 098

Given the following conditions:

- A Steam Line Break has occurred.
- All equipment actuated as required.
- The team has isolated the faulted steam generator.
- Safety Injection, Containment Isolation Phase A, and Containment Isolation Phase B have been reset.
- RCS pressure is 1775 psig and rising slowly.
- There are **no** other indications of RCS leakage.

Which ONE (1) of the following describes the sequence of steps that will stop SI pumps?

A. Establish Charging
Stop SI and RHR pumps
Verify SI flow not required

B. Stop 1 SI pump
Check RCS pressure stable and establish Charging
Stop 1 RHR pump. Ensure RCS pressure remains stable, then stop the second RHR pump

C. Establish Charging
Check RCS pressure stable and stop 1 SI pump
Verify SI flow not required and stop BOTH RHR pumps

D. Establish Charging
Check RCS pressure stable and stop 1 SI pump
Stop 1 RHR pump. Ensure RCS pressure remains stable, then stop the second RHR pump

Question 099

On a loss of a DC bus the operator is directed by ONOP-EL-5, "Loss of a DC Bus", to locally trip generator breakers 1 and 3 if a unit trip has occurred and the generator breakers 1 and 3 have not tripped.

Which of the following is the overriding concern?

A. Excessive battery discharge

B. Motorizing the Main Generator

C. Reverse power in the Main Transformer

D. Unit Auxiliary Transformer damage

Question 100

A reactor trip has occurred due to a loss of feedwater.

The following conditions exist:

- The team has entered FR-H.1, Response To Loss of Secondary Heat Sink.
- RCS pressure is 2240 psig.
- SG pressure is 1040 psig.
- SG levels are 65% wide range and slowly trending down.
- Total AFW flow is 0 gpm.

Which ONE (1) of the following actions is performed next?

A. Trip RCPs.

B. Establish bleed and feed cooling of the RCS.

C. Return to E-1, Loss Of Reactor Or Secondary Coolant.

D. Depressurize SG's and initiate feed using the condensate pumps.